Better FARMING METHODS

Business Magazine for Leaders Who TRAIN and ADVISE Farmers

MARCH, 1951

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Fourth Annual Husbandry Issue

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A MAN NEEDS TO BE in top shape physically to "cut the mustard" on the end of a cross-cut saw for more than ten minutes. This job really takes energy! Yet thousands of cords are cut by this method on countless farms.

Other farms have power saws. Frequently they are mounted on runners so you can skid them from one spot to another. Then, you swing a sledge and pound in iron stakes to hold the saw down. You also must carry a long heavy belt and after the saw is staked down you line up the tractor and back it into the belt. This takes time.

In the woodlot you usually have wood to "buzz" at several locations. Some farmers may elect to go through the trouble of setting up at each location. Most farmers, though, understandably prefer to load their logs, heavy as they are, on a wagon or sled and haul them to the saw set up in the farm yard.

The Dearborn Cordwood Saw and the Ford Tractor are changing this picture. The Ford Tractor carries this saw anywhere. Ford Tractor Hydraulic Touch Control lowers the saw to the ground. The belt lines up and tightens automatically. No iron stakes, no sledge, no lining up and backing into the belt! No reason to lift and haul long heavy logs to the farm yard for sawing. Saw them up wherever they are and simply throw the chunks into a wagon!

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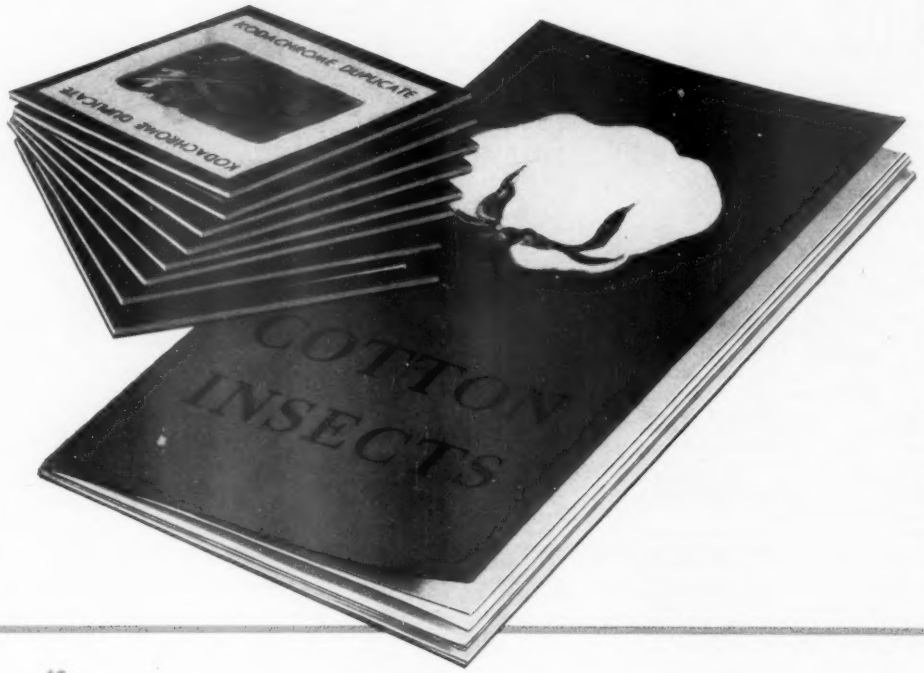

This 16-page booklet—available free in quantity—helps farmers recognize harmful cotton insects, says where and when they are found, and what to do about them. Containing full-color individual illustrations of the thirteen most prevalent cotton insects, this booklet will be a valuable addition to your supply of insect control data. Also available, without charge and without advertising, is a set of full-color, 35 mm. slides of these insects. If you are in a cotton-growing area, farmers will enjoy seeing these instructive pictures at your next meeting.

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Business Magazine for Leaders Who Train and Advise Farmers

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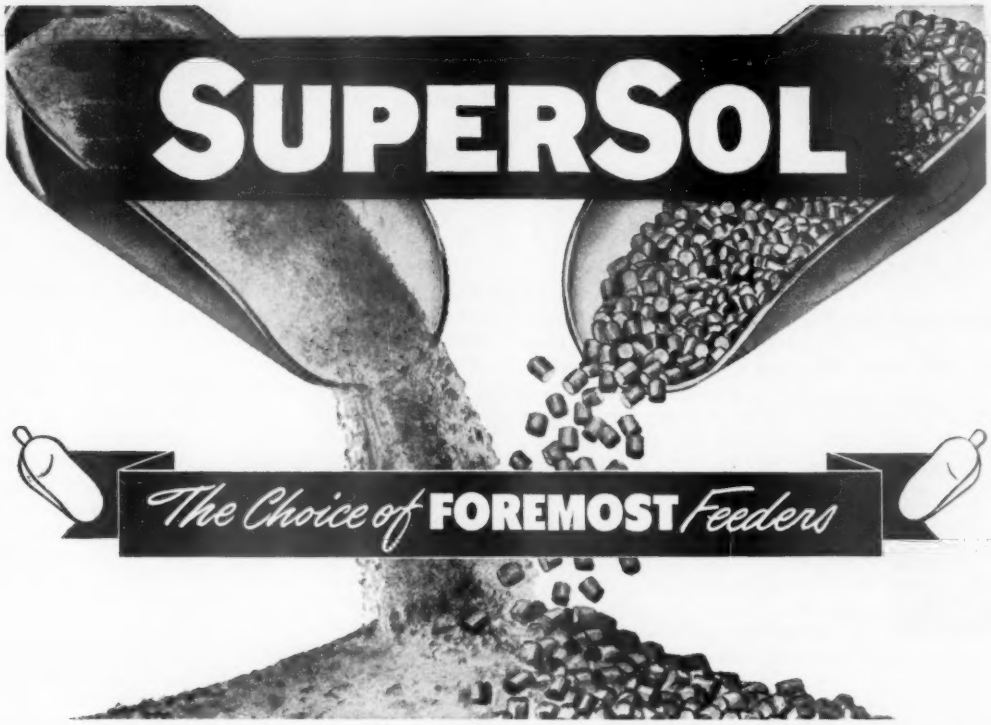

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WASHINGTON NEWS

By **FRED BAILEY**

HUTSON TO ASSIST JOHNSTON—A typical bureaucrat is as good a description as any for J. B. "Jack" Hutson. The term sometimes is used as an uncomplimentary epithet, but seldom in the case of Jack Hutson. Jack has been around Washington a long time and you usually will find him where the going is toughest.

Jack Hutson

Right now he has one of the toughest jobs in his long government career—as Agricultural Assistant to Office of Economic Stabilization chief Eric Johnston. But, to give him an even hotter spot temporarily, Johnston loaned him to Price Administrator Michael Di Salle to help set up farm price controls.

Jack is what is known in the government as a "fireman." When things get hot in any agency dealing with agriculture they usually send for him. He came out of retirement from government work, after four years as president of Tobacco Associates, to tackle one of the toughest jobs in Johnston's office.

His government career spans a period of more than 20 years, and includes almost as many titles. He became a budding bureaucrat in the pre-Henry Wallace era of the Agriculture Department and stayed to help guide the old AAA through the turbulent '30s. He became Administrator of PMS, successor to Triple-A, president of the Commodity Credit Corp., and Undersecretary of Agriculture. He was Deputy War Food Administrator and, later, a reconversion assistant to the President.

MANY QUESTIONS—FEW ANSWERS—It is typical of Washington that it raises more questions than it can answer. One that right now is worrying the bigwigs is: What sort of a farm program will be needed in a full-scale defense program? You may have to wait until 1952, at least, to get the full answer as to price supports and ceilings, production controls, and materials allocations.

The revised 1951 farm program provides little more than a hint of what is to come. The present program is a quick about-face, designed to keep production up rather than hold it down, hold prices down rather than keep them up. A year ago Washington wished for fewer surpluses, but now with little change in the total supply, bigger reserves are wanted.

Balanced production is a term to watch when Washington starts talking about 1952 farm programs. The big question is: Can the necessary shift from nonessential products to those most needed for the defense effort be achieved through voluntary cooperation of growers? Officials shy away from saying so publicly, but most of them think the answer is "no."

With price support promises no longer available as bait to induce "voluntary" compliance with acreage limitations and marketing quotas, officials are searching for other methods. Some are toying with the idea of persuading farmers to comply with suggested acreage shifts through allocations of production facilities, including fertilizer, labor, and machinery. So far that is just a vagrant idea without fixed address.

STRONG MEASURES FOR 1952 PRODUCTION POSSIBLE—Just a hint as to what may be in official minds in the way of farm programming for 1952 may be read into Secretary Brannan's February appeal to farmers for shifts of acreage into crops most essential to the defense effort. He asked for maximum practicable increases in spring wheat, corn, and cotton.

"Full production from American farms is essential to the defense effort," Brannan said. "We are aiming at the highest feasible level of production for those crops which will be needed most."

Brannan emphasized that it is a voluntary shift in acreage that he is requesting. With the exception of peanuts and tobacco there are no goals and no allotments. Brannan called his request "guides." They are broken down to state and county acreage figures.

He asked for 28,535,000 acres in cotton, almost 10 million more acres than 1950; 90 million acres of corn, up 5,630,000 acres; 21,400,000 acres of spring wheat, up 2,881,000 acres, and for 1,900,000 acres of rice, up 280,000 acres. He asked for cuts of 3 million acres in grain sorghums, almost 3 million fewer acres of oats and a reduction of 291,000 acres in soybeans.

We need all the livestock we can raise, he said, but farmers should make their plans with close attention to the feed situation. Farmers shouldn't make the overexpansion mistake they made in World War II.

PRICE CONTROL ON FARM PRODUCTS NOW SET—Price control policy and procedure for farm products now seems to be pretty well set. As set at any rate as most Washington policy decisions. Boiled down to outline form here is the way price officials think it will work:

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I have now cultivated my three hundred acres eight times without taking them off!

I am very well pleased with the way they wore even, without the ragged edges you so often find with other hard-facing.

I praise your Tube Stoodite and the method used in applying it.

Very truly yours,

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TUBE STOODITE is a NEW achievement in a long list of hard-facing alloy developments. Similar in uses and results to long famous STOODITE, it now insures a new ease of application that is absolutely amazing!

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TUBE STOODITE is something new that every farmer will be glad to learn about. If you are unacquainted with this new alloy why not learn more now? Just write for literature or see your local Stoody Dealer. And don't forget—if you haven't yet received a free copy, we want you to have your "Stoody Handbook for Hard-Facing Farm Tools." It's waiting for your request!

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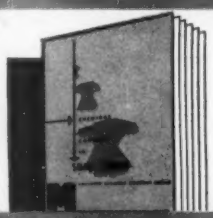
Monsanto, manufacturer of more than two score of products used in agriculture, offers you a selection of literature on the use of chemicals in controlling weeds and insects. At your request, copies of these booklets, folders and bulletins will be sent to you free. Literature that is available now, or will be ready in the near future, is reviewed briefly on this page. Please use the coupon to indicate the pieces you want. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1700 South Second Street, St. Louis 4, Mo.

"CONTROLLING WEEDS WITH CHEMICAL SPRAYS"—a 20-page, illustrated booklet covering such subjects as weed damage, advantage of controlling weeds with chemicals, equipment for applying chemicals.

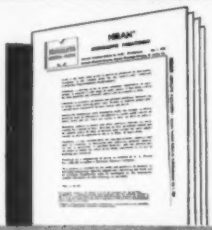


"CHEMICAL WEED CONTROL IN SMALL GRAINS"—a 16-page booklet giving facts about chemicals to control weeds, when to spray, application rates, equipment and formulas.

"CHEMICAL WEED CONTROL IN ORCHARDS AND VINEYARDS"— 16 pages of useful information such as: chemicals to use, when to spray, spray concentrations and formulas.

"CHEMICAL WEED CONTROL ON RIGHT OF WAYS"—A 20-page booklet filled with facts that are of special value to railways, utilities, oil companies and highway departments.

"HANDLE PARATHION SAFELY"—A fact-packed leaflet telling how to be safe while handling drums, formulations and applications.



"NIRAN"—(Technical Bulletin O-52), 13 pages of technical information on Niran* (Monsanto Parathion), including properties, effectiveness in controlling agricultural pests, effect on plants and other vital facts.

NEW BULLETIN (Technical Bulletin O-46) on Monsanto Nifos*-T soon will be off the press. Reserve your copy by mailing the coupon today.

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Secretary Brannan will report to the Office of Price Administration at least once each month on the legal minimum price at which ceilings for each product can be set. In doing that he will work out grade, location and seasonal differentials for each product. He may suggest the ceiling needed to get the production.

Minimum ceilings are figured by one of three methods provided in the Defense Production Act. These are:

1. Parity, adjusted for grade, location, and seasonal differentials.

2. The highest price paid in representative markets, if the market was active for that particular commodity, between May 24 and June 24, 1950.

3. If the product was out of season between May 24 and June 24, the Secretary shall determine the minimum ceiling by taking the price in the last active market period and adjusting that for any change in the general level of farm prices.

Ceilings established at parity change whenever there is any change in parity. Thus, if parity goes up 5 percent, then the ceiling must go up by the same amount. Ceilings established above parity need not go up when parity rises.

Sales over ceilings between farmers are not to be a violation of the law. Likewise, farmers may sell above ceilings to commercial handlers and no penalty is involved. The handler who re-sells in packaged or processed form must base his selling price on either parity or the actual price, whichever is the lower, plus processing or packaging costs and a customary mark-up for profit.

The price, then, is controlled by legal costs plus profits all the way from the first sale by the producer to the actual sale to the consumer. That makes enforcement much easier, Di Salle figures, than trying to police every sale.

FARM LEGISLATION MAY BE REVISED—Farm legislation may yet become the focal point of some bitter fighting in Congress this year, despite the general intention not to make any substantial changes in basic farm laws. Some of the things to be watched are these:

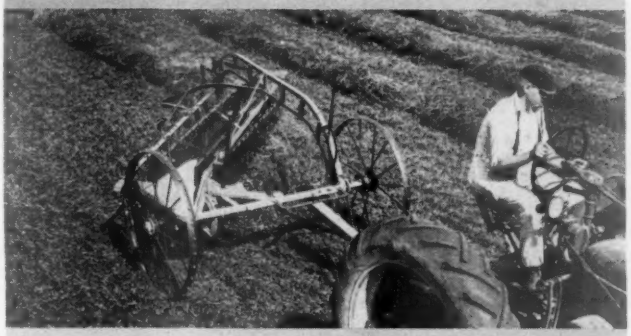
Subsidies—some high Administration officials have hinted strongly that food subsidy authorization will be asked.

Supports—there is considerable official talk, and a few bills, to provide price supports for perishable commodities. Something like the Steagall Amendment of World War II.

Draft—special legislation to provide draft exemption for essential farm workers will get Congressional consideration if draft boards continue inductions which force abandonment of farms.

Labor—the Labor Department has prepared a bill which would give it authority to pay transportation of both foreign and domestic farm workers, and to establish pay and working conditions for them.

Now NEW IDEA Offers Two Best Buys in Side Rakes



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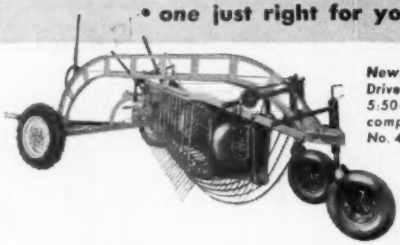
• one just right for your requirements



New! NEW IDEA No. 45-G Rake: Drive wheels are equipped with 5.50-16 traction type tires (as compared with 44" wheels on No. 4 Rake shown above). Provides fullest clearances for free movement of hay; "up-and-down" reel action; protection against tooth breakage; fully enclosed gears running in oil.

If you lean to a rake with lower-slung running gear . . . and want the surer traction of husky implement tires . . . you'll find the brand-new NEW IDEA No. 45-G Rake "just what the doctor ordered."

Or perhaps your soil and crop conditions call for a higher-wheeled rake. If so, you'll also find NEW IDEA fills the bill best . . . with the now famous NEW IDEA No. 4 Side Rake . . . available on steel-rimmed or rubber-tired wheels and favored by thousands of farmers.

Both feature the same rigid, trussed arch frame—built like a bridge and every bit as rugged. Both are equipped with a sag-proof, 4-bar spiral reel that yields instantly to any obstruction. Both have self-aligning, sealed bearings on tooth bars.

And only these great NEW IDEA Rakes give you detachable, double-curved teeth; springy, oil-tempered and positive in pick-up; unequalled for thorough but gentle windrowing and tedding.

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- ☐ Corn Pickers
- ☐ Corn Snappers
- ☐ Hand Shellers
- ☐ Transplanters

Name_____
Address_____

The author stands between two corn plants, the one on the left with a fertile tassel and the one on the right with a sterile tassel. When the use of sterile tassels has been fully developed, it may eliminate detasselling.

Where Do We Go Next In . . .

Hybrid Corn Breeding?

By R. R. St. John
DeKalb Agricultural Association

● WHEN CORN BREEDERS get together, they seldom review the past and seldom predict too much for the future. The immediate problems in corn improvement are so many and new situations so numerous that there is not enough time to follow all of the leads that show up.

What the future holds in the corn belt states for dwarf corn, prolific corn, high protein corn, grass-like corn, high sugar in dent corn, high oil corn, and corn borer resistant corn is just beyond the reach of our extended finger tips. Improvements in corn breeding are important only when they become a reality on enough farms to change the nation's average acre yield of quality corn.

Hybrid Corn Dates Back to 1908

Three major events stand out in bold type during the past 43-year period in corn improvement. First was the invention of hybrid corn by Dr. George Harrison Shull in 1908. Shull produced the first hybrid between inbred strains and was the first to predict and recognize the great possibilities to come from hybridizing these pure lines of corn. Therefore, it seems proper to call him not only the inventor, but the first corn breeder to foresee such a great future.

If we consider the invention of corn hybrids the first major turn in the road in modern corn improvement, we must next consider the invention of the double cross method for producing seed as the next milestone in a great achievement. It took nine years from the time hybrid corn was first invented by one scientist for other scientists to step out and make the invention work.

The achievement of Dr. Donald F. Jones for supplying a method at the conclusion of his experiments in 1917 to make Shull's invention work is an outstanding contribution in the development of hybrid corn. He gave corn breeders the world over, a method, a model, a technique, or a plan, that Shull's experiments did not spell out.

It has been estimated that approximately 125,000 people were pulling corn tassels during a peak detasselling day in 1950 to make hybrid seed corn. As you know, every ear of hybrid seed comes from a detasselled plant. It usually takes more than a week to be sure that the field is well detasselled.

A new method is needed. The problem of recruiting enough good labor to pull all the tassels from seed plants that go into our annual corn seed crop of 10,000,000 bushels is a real problem in times when good labor is scarce.

Time for Improvement

A new method for producing hybrid seed without detasselling has been invented. It uses male sterile plants. In order to prepare us for this third spectacular achievement in corn improvement, let us review our present method of seed production.

Commercial hybrid seed corn is made by planting two parental pedigreed stocks in alternate plots in a farmer's field. Hybridization is then accomplished by detasselling the seed parent plots before the tassels are fully mature. A fertile tassel will produce from 18 to 25 million pollen grains or about 25 thousand times the amount of pollen that is actually used in fertilizing the fresh silks on any plant.

Some corn breeders now believe there is no need for every corn plant in a farmer's field to produce a normal tassel. They believe male sterility in breeding stocks can be used to go beyond the method now used by seedsmen in the production of seed. There is much evidence to believe the crop that farmers grow may be improved.

By definition, a male sterile plant is one that does not shed viable pollen. Back in 1931, Dr. M. M. Rhoades, (now president of the American Genetics association, and professor of Botany, University of Illinois) wrote about the cytoplasmic inheritance of male sterility in corn. Rhoades demonstrated the absence of gene differences between male sterile and male normal strains of corn. He not only showed that male sterility was inherited, but pointed out that it involves plasma genes.

Detasselling May be Eliminated

These little invisible units involved in the cells of corn plants are able to suppress or prohibit the formation of pollen in the seed parent rows. This makes it possible to produce hybrid seed corn without detasselling.

The importance of this discovery by Rhoades in 1931 is now being diligently studied by seedsmen in many states to demonstrate its practical application. Recent studies in one of DeKalb's corn breeding nurseries has uncovered new types of plasma genes. These may be more deadly in their effects in the production of male sterile plants than the two types we are now using.

Two Important Points

This story on hybrid corn seems to point out two worthwhile considerations. First, practical corn breeders should diligently follow all new leads to establish new methods. We make more progress by

"First the blade, then the ear..."

It will soon be spring again. Farmers are getting ready to prepare and plant their fertile fields. Now the grass is greening over some of our range land. Lambs, calves and pigs are being dropped. From winter rains and late snows comes the moisture needed for good growth. Again, America has promise of abundant food production.

This year abundance of livestock, grains and other foodstuffs is needed—as seldom before in our history. For a national defense program, like an army, "travels on its stomach." At home and abroad our armed services will require great quantities of food. People must be well fed to work at peak levels.

Production of food on such a gigantic scale will put a heavy strain on our land . . . not only this season, but far into the future.

So the conservation of our soil's fertility and of our water resources is more important now than ever before. We *can not afford* the luxury of waste. Fortunately, farmers and ranchers know how erosion can be arrested. How our watersheds can be preserved. How with proper conservation practices they can maintain soil productivity at present high levels . . . And how we can reach even higher levels of food production in the future.

In this emergency the use of conservation methods fitted to individual farms and ranches is a *must.* We believe that thus the nation's farmers and ranchers can contribute in full measure to our national strength.

FOOD FACTORY RUNS ON GRASS

A steer is a food factory that turns feedstuffs into meat—efficiently, economically. It manufactures grass, hay, roughages and grains into tasty, nutritious meat . . . Some folks see our steer differently. They say it is a grain burner. That's because they don't know the facts. Here is what it takes to make a 1,200-pound steer—10 to 15 tons of grass; ½ to 1 ton of hay; 200 to 250 pounds of protein supplement; only about 60 bushels of corn. By far the most of this feed is material unfit for human use. People cannot eat grass, hay or roughage. Protein supplements such as meat scraps, cottonseed or soybean meal also are not good human food. Half of our country is in grass, which would have little value if it were not fed to livestock. The basis of meat production is grass, hay and forage.

OUR CITY COUSIN

"When that March wind blows full force,
I can see he's a *draft* horse!"

Business Know-How Is Needed

In America little business and big business make a team that is hard to beat. In many industries little businesses make the parts which big business assembles into big, complete, finished products. Working together in this way business as a whole has developed the "know-how" that gives our nation its mighty productive strength.

To me, it is essentially American to start little and grow big. Swift & Company is a good example of what I mean. Gustavus Swift started in a small community. He bought a heifer and sold the meat personally from his original *red wagon.* As he gained "know-how" his business thrived. Later his sons worked with him in developing a service essential to a growing nation. Today, little companies still grow big—and the combined know-how of all business is one great bulwark of our defense.

When national emergencies arise, where except in business would you find the trained manpower to handle problems of production and distribution? They become responsible for handling in their own companies the special problems created by the emergency. They put their combined *business know-how* to work to keep America strong.

It is my conviction that we Americans live better because there are both big and little businesses. I maintain that business *know-how* develops as businesses grow . . . and that such *know-how* is essential to the defense of all the big and little things for which we Americans stand.

F. M. Simpson
Agricultural Research Department

Soda Bill Sez . . .

Backbone is fine — unless the head at the top of it is made of that same stuff.

Cheer up! Yesterday's gone and tomorrow hasn't arrived yet.

KY 31 FESCUE...the Wonder Grass

by William C. Johnstone
Field Agent in Agronomy
University of Kentucky
Lexington, Kentucky

William C. Johnstone

In 1887 William Suiter of Menifee County, Kentucky, found a few clumps of grass particularly relished by his oxen. He saved the seed and sowed it.

In the early '30's the Kentucky Experiment Station found this grass to be a strain of tall fescue which they called "31 Fescue." So good did it prove that there are now over a million acres in production.

Farmers in the South are now producing excellent pastures with Ky 31 Fescue and white clover where it was difficult to produce pastures before.

Ky 31 Fescue is a long-lived, deep-rooted grass that grows well under a wide range of conditions. It grows particularly well on poorly drained soils. It produces a lot of growth in cool weather. It has an enormous root system that supports stock on wet land and permits it to withstand long seasons of dry weather, and it has made year-round grazing possible on many farms. A farm at Huntsville, Alabama, is carrying 700 head of beef cattle on fescue pastures without grain or hay. Another near Clinton, Kentucky, produced 210 pounds of beef per acre between May 12 and June 22.

Ky 31 Fescue should always be grown in combination with a legume. Lime, phosphate and potash are often necessary to maintain the proper balance between the legume and grass. Seedings may be made in late summer or early spring.

Quote of the Month

"Our plans for the coming year must be based upon the greatest possible production. That must be the keynote for farmers and stockmen . . . It's crystal clear that . . . in 1951, an ample supply of food is essential for victory. All-out food production is our job. Plan it that way."

Nelson R. Crow, *Publisher*
Western Livestock Journal

Swift & Company
UNION STOCK YARDS, CHICAGO 9, ILL.
Nutrition is our business—and yours

Thanks for your good work!

Publishing folders, booklets and reprints is part of our job at Spencer Chemical Company. We distribute such pieces by the thousand to help farmers use all kinds of fertilizer more efficiently. Yet we serve only as publisher. The information in this literature comes from you agronomists, extension workers, county agents and vocational agriculture teachers. It's a joint undertaking, and we're proud to be a partner. If you can use any of the farming helps shown, please let us know.

SPENCER CHEMICAL COMPANY

SPENCER

606 DWIGHT BUILDING
KANSAS CITY 6, MO.

Here is a recessive character found in corn. This is called dwarf corn. When seed from a cross between a dwarf and a regular stalk of corn is planted, plants segregate into normal and dwarf plants.

new techniques than by refining the old. Secondly, people who read feature stories should understand that great achievements in corn improvement are not discovered today and become widely used tomorrow.

Agriculture is not always a very exact science. Every year is a different year and environments where corn plants grow are too numerous to catalogue. Our job is best done when we produce hybrids that do the most good for the most people.

Hybrids created for special purposes with limited needs are important but raising the average national acre yields is more important. This can be accomplished in many ways, among which the breeding of hybrids resistant to our many corn diseases is most important.

★

New Soybean for Corn Belt

The USDA announces the release of Blackhawk, an early, high yielding variety of soybean for the Corn Belt.

It has been tested extensively for four years. Test would indicate that Blackhawk is a definite step toward better soybean crops in the corn belt.

Blackhawk comes from a cross between the Mukden and Richland varieties. It was created in cooperative research at the Iowa Experiment Station.

Information on seed supplies can be obtained from the cooperating State Experiment Stations of Iowa, Indiana, Illinois, Michigan, Wisconsin, Minnesota and South Dakota.

★

"Nellie's been producing these ever since she started worrying about the foreign situation!"

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Help Farmers Remodel Their . . .

Farm HOUSE Into A Better HOME

By Keith Hinchcliff
Agricultural Engineering Department
University of Illinois

● A FARM FAMILY might very well come to their agricultural leader and say: "Through your advice we've learned to farm better. Now we're going to fix up the old house. Can you help us?"

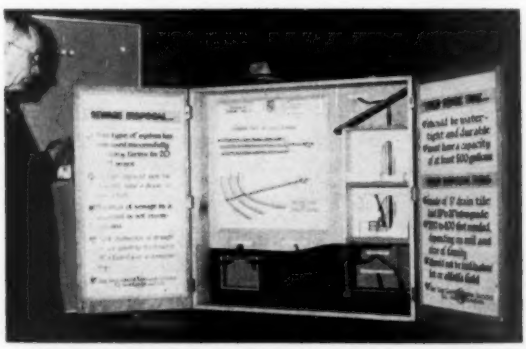
It's natural that farm families should turn to you for advice on home improvement. First, no one else in the community knows more about how much home improvement a given farm could pay for. Second, you have a better understanding of the special home requirements of farm living. Furthermore, there is seldom any private professional design service available in rural communities.

Help Them to Help Themselves

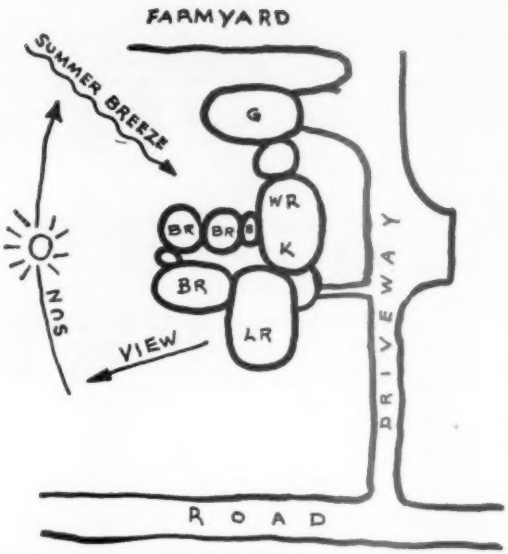
You won't have the time or the background to provide professional planning help to all the farm families in your community who might need or request it. However, most state colleges have housing specialists who can help you. The Housing Act of 1949 made it possible for states to exchange educational ideas for giving home improvement guidance.

One thing is clear, no single educational method can solve all problems. The technique must be adjusted to both the leader and the problem.

Start with an overall house plan with drives and yards, even though the immediate problem is only adding a bathroom or remodeling a kitchen. The right guidance at the beginning is very important to any future help you can give.



Here is a model and chart of a sewage disposal system. This makes an excellent way to show how a job should be done and what it will look like when accomplished. Such charts are easy to make.



Here is one place where it pays to "doodle." By simply drawing the existing features of the farm and then arranging rooms by the above method, you can get a good idea of what is desired. This is also an excellent way to visualize a house plan. No remodeling problem is so small that the overall plan should not be reconsidered.

One method of house and yard planning has been called "doodle" or "goose egg" planning. Anyone can do it with only a pencil and a piece of paper.

Begin by roughly sketching such recognized influences of the home setting as roads, driveways, views, and sun direction. Then use "goose eggs" or rough circles to locate approximate locations for the kitchen to obtain driveway and farmstead views, southern exposure for the living room, entrances convenient to the driveway, and so on.

For remodeling, start with parts of the house you want to keep. Omit walls that do not bear a load.

You can figure out a lot of different possibilities in a few minutes this way. Then, choose the best plans for further development with assurance that you haven't overlooked basic considerations.

Use a House Score Sheet

Another planning method is to use a housing score sheet to direct attention toward the overall problem. This gives guidance with a minimum of individual attention on the part of the adviser.

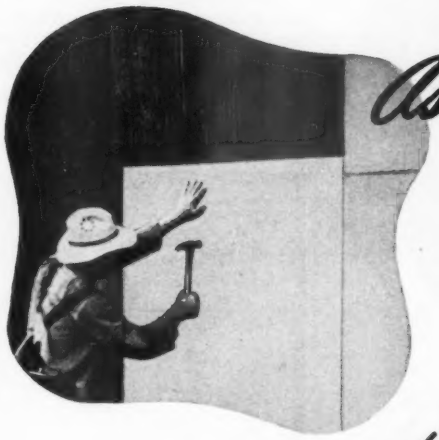
A housing score sheet should be specific, since such terms as "convenient" kitchens or "attractive" appearance has variable meaning. On the other hand, anyone can visualize "a minimum of six feet of wall cabinets," or "bathroom accessible from all bedrooms without going through another room."

The University of Illinois is making use of a score sheet called "Farmhouse Improvement Analysis" designed to help farm families improve room relationships, safety features, and construction.

A score sheet also helps you make a "time" plan for improvements. This is as important a part of remodeling a plan as planning the space or structure. Most farm families must make their home improvements an "installment" at a time.

When it comes to teaching technique, there is something to be learned from people's fascination for watching something develop. Few are ever too busy to stop and watch a building

For greater fire safety on the farm ...Johns-Manville Building Materials



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• • •

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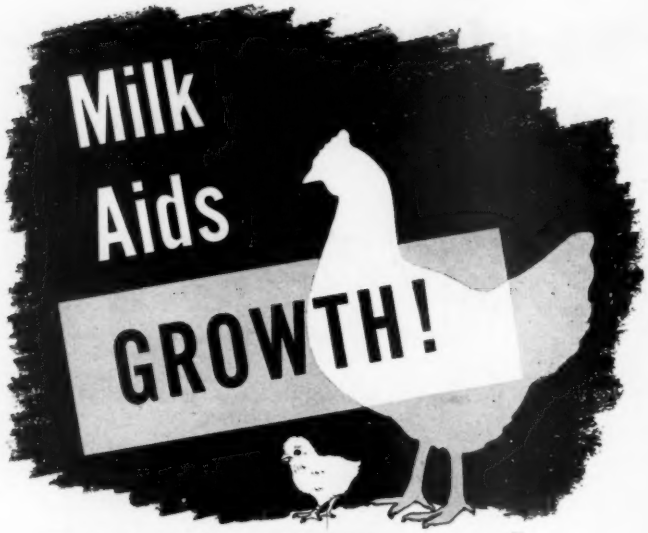

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Better Farming Methods, Mount Morris, Ill.

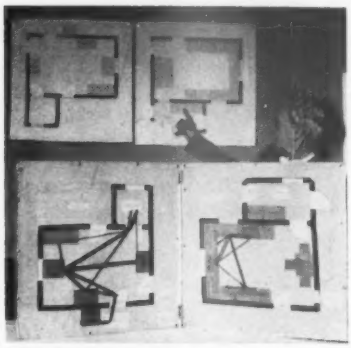
Turn to Page 86 for Help
Use The HELPFUL BOOKLETS SECTION

under construction.

The same idea will work in presenting housing information to groups. Build the story up a bit at a time. Flannelgraphs and chalk-talk techniques do this very effectively. You start with a blank background in either case. Attention is focused on *one* point at a time. The observer tends to feel he has a part in the outcome.

Flannelgraphs can help with the details of room planning, too. You can arrange basic pieces of kitchen equipment in various places on the flannel plan so that everyone can see each step.

The chalk-talk method has the advantage of versatility in directing attention to one point at a time. You can include



Flannelgraphs can be used to an advantage also. Families are able to visualize what the completed plan will look like. Such a method can be adopted to show most any type of remodeling around the farmstead.

cartoons and surprise effects which add "spark" to the information presented.

Models show some things better, as they also show depth. Hand-made models are expensive, though. The University of Illinois uses a mass-produced cardboard farmhouse model to show principles in remodeling the familiar T-shaped farmhouse. These models are inexpensive enough so that they can be provided for local leaders' use. By using a model that can change appearance, step by step, you can also show how to plan a time schedule for home improvements.

There are effective visual aids available free. There's a lot to be explained to farm people regarding the advantages and disadvantages of various building materials if they are to do the job desired. Samples of building materials can be seen, felt, and even smelled in some cases while the audience is hearing about them. The stimulation of these other senses helps people learn and understand.

As techniques of home construction and planning are improved, new and better ways will be found to make them better understood. You can expect farm people to continue to seek home improvement help from their agricultural leaders.

When writing advertisers please mention *Better Farming Methods*

Story of a Cover Page

Covers just don't happen. They take lots of time and effort, plus a great deal of planning.

Do you like this month's cover? I hope you found it interesting and a little different than the usual covers.

Let's follow this cover through to show you the work which goes into designing one. The cover idea took form back about the middle of December, 1950. On December 29, Editorial Director O. A. Hanke, Assistant Editorial Director Harold Florea, Advertising Director, Don Sweet, Advertising Manager, Max Buell, and the editor sat down around a table where various ideas for the March cover were presented. The editor had the responsibility of submitting the ideas and the other members took this opportunity to suggest additional ideas and criticize those presented.

At the end of this meeting the basic plan was decided upon. It would show a representative picture of livestock, soils, crops, and poultry built around the farmer and his farm homestead.

The next step was to select pictures and give them to the artist to draw up and suggest a means of presenting the idea.

The picture of the calf representing livestock was obtained from the American Hereford Association, Kansas City, Mo. The picture representing soils was given to us by the Caterpillar Tractor Company, Peoria, Ill. The cotton photo came from the USDA extension photographic files while the rooster's head to illustrate poultry was taken from our extensive picture files here in Mount Morris.

The center photo was finally selected from a large group and was supplied by the Harold M. Lambert Studios, Philadelphia, Pa.

Next, the artist took the pictures and designed the idea and the cover as you see it. However, this wasn't all.

As far back as October and November, ideas for presenting editorial features in this issue were discussed. Initial letters went out in November requesting authors to write articles which you have probably read by this time. Then, definite commitments had to be obtained so that the titles which appear on the cover could become a part of it.

Finally, the photographs, artwork, and feature titles were all assembled and ready for the printer. Final approval was received from the editorial director and the publisher. Then the cover went to the printer, was set up, and is as you see it on this issue.

It's sometimes confusing to be working on covers and issues three to four months in advance. For instance, as you read this, the April and May covers are finished and we are working on the June, July, and August ones.

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CHIPMAN 2,4-D WEED KILLERS

For selective control of broad-leaf weeds in grain and grass crops. Complete line available: 2, 4-D Ester, 2, 4-D Amine and 2, 4-D Ester Dusts.

CHIPMAN 2, 4, 5-T ESTERS 44% Especially recommended for controlling certain woody plants resistant to 2, 4-D. Applied as water or oil mixed spray.

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ATLAS "A" A 40% sodium arsenite solution. Controls certain aquatic vegetation in lakes and ponds. Used to destroy trees and shrubs; also annual weeds and grasses.

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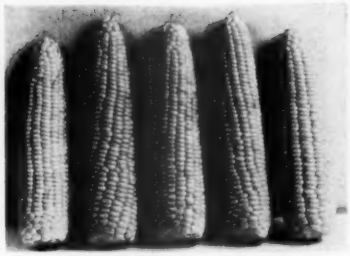
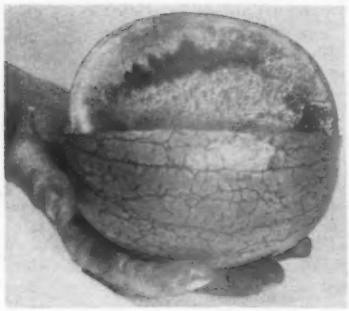
Surecrop hybrid cucumber



Golden State hybrid sweet corn



New Hampshire midget watermelon

New Vegetable Varieties

By Paul Work
Cornell University

● THIS IS A BIG country. It takes a lot of varieties of vegetables to meet the varied needs of our highly varied regions. Plant breeders are at work in every area of the country—some of them with the United States Department of Agriculture, some with the state experiment stations, some with seed companies—a few not readily classified.

Each year we have to try out a whole group of varieties. Some are dull from the start, some flash and die, and others gleam steadily for years.

Seedsmen and experiment stations are constantly appraising the newcomers in their trial grounds. Most seedsmen won't enter a new variety in the catalogue unless they think it's good and station workers say what they think of it in bulletins and press releases.

All America Selections, with a score of judges all over the country, awards medals to those that seem worthy. These awards furnish a good guide, though many novelties are not entered for one reason or another.

After all, the real judge is the gardener, home or commercial, who plants the seed. The market grower, especially, should not make major changes in his planting plans until he has grown a trial planting under his own conditions.

One of the major aims of plant breeders nowadays is to achieve resistance to diseases, especially those that are not readily controlled by spray, dust, or seed treatment.

A number of mosaic resistant beans are here. *Idagreen*, Rogers Bros. Seed Co., seems to be a marked improvement over the old *Refugee* with a better plant and darker colored pods. Though it's a little short for most markets, it should find a place among growers for processing.

Tenderlong 15, Associated Seed Growers, is similar to *Tendergreen* but resistant to mosaic. Along with these, *Topcrop*, All America, with round pods, and *Contender* with oval pods, both introduced last year by the USDA, should be tried.

There are several strains of mosaic. Resistance to one does not necessarily mean resistance to all.

Cucumbers

The hybrid principle that has done such wonders for sweet corn has been utilized in developing new slicing cucumbers.

Surecrop, All America, from R. H. James, Colorado, is resistant to mosaic and downy mildew. The latter disease is often devastating in the south. *Burpee Hybrid* has been out a few years. *Santee* comes from W. C. Barnes, South Carolina experiment station, is downy mildew resistant and well suited for the south. *Niagara*, Henry Munger, Cornell, is resistant to mosaic. All of these slicers will have quite a task ahead of them to replace *Marketer* in situations where disease is not a problem. *Yorkstate Pickling*, also by Munger, appeared last year and is mosaic resistant.

Tomatoes

Urbana is an All America tomato bred in Illinois, with a short-branching vine and better coverage of fruits than *Gem*. The fruits are of good size, round, smooth and well colored.

Fortune, from Arkansas, is from a cross between *Rutgers* and *Pan America*. It is said to be a little earlier than *Rutgers*, not quite so large, but deeper and ripening to fine color.

Seed of *Queens* tomato will not be available in quantity until 1952, but many will try it this year. It has already been announced by L. G. Schermerhorn, New Jersey, the breeder of *Rutgers*, king-pin of all tomatoes. *Queens* is earlier than *Rutgers*, later than *Valiant* and looked very fine in the one trial that I saw.

Special interest centers around a new mid-season cabbage by Ferry-Morse, *Bonanza*. Its great virtue is that the heads are hard and are marketable when small but growth will continue without bursting until full size is attained. But don't look for too much uniformity of plant or too high table quality.

An All America hybrid from Japan is called *O-S Hybrid*. The head is flat and not very firm but this development promises great things in bringing hybrid vigor to cabbage.

Melons

For northern gardeners there is promise in *Farnorth* muskmelon from Minnesota and in *Granite State*, an All America from Yeager, University of New Hampshire.

And the *New Hampshire Midget* watermelon, also All America Selection by Yeager, is an improvement over the older White Mountain. All of these are early in maturity.

Seedless watermelons of various types are offered by two or three seedsmen and *Northland* an early hybrid of Harris was offered last year.

New sweet corns are *Golden State*, Michael Leonard, and *Big Mo*, Cornell, both All Americas, making large ears on strong stalks. *F. M. Cross*, was bred by Ferry-Morse on the Pacific Coast and looks good as a main crop variety. *Seneca 60 (High Quality)*, Robson Seed Farms, is a new strain of this old first early, designed to bring better table quality than the earlies have offered hither-to.

Better Farming Methods has a list of sources of these newer offerings and others not included in this brief summary. Should you desire a copy, please drop a line to Editor, Better Farming Methods, Mount Morris, Ill. Also, a Cornell Extension bulletin, Newer Varieties of Vegetables for 1951 is in preparation and may be obtained by writing Cornell Extension Service, Ithaca, N.Y.

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If A Farmer Asks You . . .

Should I Raise Broilers?

. . . Use These Facts to Help Him Decide

By Robert L. Hogue and R. W. Detwiler
Purdue University

● COMMERCIAL BROILER production has been one of the most rapidly expanding phases of the poultry industry during the past 15 years. Production of broilers has increased from 43 million in 1935 to 570 million in 1950. The most rapid expansion in production has been during the past decade with 1940 to 1943 and 1948 to 1950 showing extremely rapid gains.

Production has tended to be centered in specialized areas. The first such area was the Delmarva peninsula (Delaware, Maryland, and Virginia). Today, Georgia, Arkansas, Texas, North Carolina, Indiana, West Virginia, California, and some of the New England states are production centers, in addition to the Delmarva peninsula.

The success and growth of a producing area requires close cooperation between feed dealers, chick hatchery and raiser. Feed represents about 60 percent of the broiler production costs. In many instances local banks, feed dealers, and hatcherymen are the source of cash for operation of the broiler enterprise.

Broiler Production Fluctuates

Volume of broilers produced is subject to violent fluctuations. Since it is a relatively short period (14-16 weeks) from the time eggs are set until the broiler is marketed, production can react rapidly to changes in the economic picture.

An unfavorable feed-price relationship at the time eggs are set causes producers to reduce chick orders. Market volume, in turn, declines several months later. Seasonal price variations, in general, have disappeared, but during the November-December period, prices decline as consumer demand shifts to other fowl.

Successful broiler raising depends upon uniform production throughout the year.

Hand in hand with rapid strides in volume of broilers produced has been progress in efficiency of production. Present day competition requires the broiler raiser to have an efficient large scale enterprise. An operation producing 5-10,000 broilers per brood is considered part time while 30,000 or more constitutes a full time enterprise. Three or four broods are reared per year.

Broiler Management Changes

Growth of the broiler industry led to changes in housing and brooding. Early in the evolution of the industry, housing changed from the semi-confinement colony system with about 300 birds per unit to the long, narrow houses. However, demand for increased efficiency resulted in development of houses 40-60 feet wide and 100 or more feet long. Labor saving devices—automatic waterers and feeders, and systems of mass brooding—are better adapted to houses of the latter type.

Overhead costs must be kept low. Practical, low cost housing is used. Construction costs vary from 65¢ to $2 per square foot of floor space or per chick capacity, depending upon material used, labor cost, and methods of feeding and brooding installed.

Forced ventilation is used in the northern areas to remove moisture-laden air from the houses. Plenty of ventilation plus a deep absorbent litter is the keystone of an effective sanitation and disease control program.

Systems of mass brooding have been developed to replace the early individual hover type brooders. Hot water brooding has been very widely used. With this system, hot water circulating pipes are installed about 8-10 inches above the floor along the entire length of the house. Usually, circulating pipes are installed near the center of the house or the rear wall. Sacks or fiber board are placed over the hot water pipes and covered with litter to provide insulation during the brooding period.

Space or unit heaters (gas, hot water, or steam) have become increasingly popular in some areas. Two unit heaters, such as are used in garages and supermarkets, directing heat toward each other from opposite ends of the house, are generally sufficient to provide heat for a 50 foot by 100 foot house. It is advisable to have an emergency source of power available when using unit heaters so that air circulation can be maintained in case of power failure.

Select Good Chicks

Selection of a chick from a specialized broiler strain is an important part of a

Broiler raising is big business. This northern Indiana broiler house is constructed of glazed tile and heated by hot water. Note fin type radiators around the wall. A feed bin carrier takes the feed the length of the house.

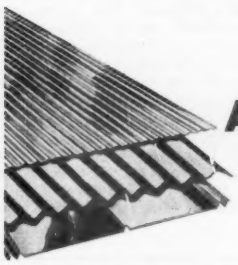
Look to the Sky

for some facts on your next roof

The skin on those planes streaking overhead is aluminum, in many places no thicker than the aluminum you'll see on millions of farm roofs. Aluminum serves best for both planes and roofs because it stands up to the weather, is strong, economical and unaffected by rust. Think of this the next time you plan a farm roof.

Because rearmament needs must come first, the supply of aluminum farm roofing is limited, and is being apportioned fairly among Alcoa Dealers. Because a new roof is a major purchase you will want all the facts before you buy.

To help you, Alcoa offers free booklets which give full information on Alcoa Roofing Sheets, types, sizes, coverage tables and accessories; where to use it on the farm and how to apply it for best results and long life. For your copies, mail the coupon below. For information on prices and delivery, consult your Alcoa Dealer.



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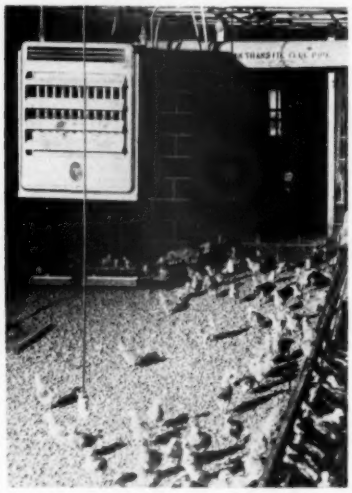
successful broiler enterprise. There are a number of breeds and crosses that are popular in broiler producing areas. Broiler strains of New Hampshires, Barred Rocks, White Rocks, and a number of crosses are among the leaders. A broiler chick must have uniform and efficient rate of growth, high livability, rapid feathering, and desirable carcass conformation. A chick lacking any one of these characteristics reduces production efficiency.

Developments in nutrition have contributed to the success of the broiler industry. Today more pounds of broiler are being produced on fewer pounds of feed. High efficiency rations for the first eight weeks and then a finishing ration until market time provide a practical feeding program. Use of vitamin B_{12} supplements with antibiotics promises to further increase efficiency of feed conversion.



This house is heated by an LP gas unit shown hanging from the ceiling. In the foreground is a mechanical feeder which cuts down on labor costs. Corn cobs are used for litter.

Goals for the efficient broiler raiser are 3 pound broilers on 3 pounds or less of feed per pound of gain at 10 weeks of age.

Labor Cost Big Item

Labor saving devices have served to increase efficiency. Automatic waterers are a must for large scale production. Either mechanical feeders or efficient handling of feed through use of carriers and easily filled hoppers are necessary for the large producer. Bulk feed delivery, in which feed is unloaded by a mechanical lift from the truck directly into storage bins, is popular in the specialized broiler areas.

Despite use of drugs and vaccines in the control of poultry diseases, the broiler producer must follow a good sanitation program. An important factor in the disease control program is raising only one age of birds at a time. Good broiler management includes complete depopulation at the end of each brood.

Indications are that commercial broiler production will continue to expand. Economists predict 1951 production at a level of 15 percent greater than 1950.

Methods of processing and merchandising broilers must continue to improve; otherwise, increases in consumption of broilers may lag behind estimated expansion in production.

Listed below are minimum standards which can be used to guide the prospective broiler producer.

1. Provide three-fourths square foot of floor space per broiler.
2. Provide two 4 foot feed hoppers or 16 feet of mechanical feeder space per 100 broilers.
3. Provide 1 automatic waterer for every 250 broilers.
4. Use high efficiency rations to produce a 3 pound broiler at 10 weeks of age on 10 pounds of feed.
5. Market 3 broods per year.
6. Observe strict sanitation practices to decrease losses from disease. Use drugs when sanitation fails to control coccidiosis.
7. Market 95 percent of the chicks started.
8. Operate with 10¢ labor income per broiler over cost of feed, fuel, and chicks.
9. Buy chicks from a specialized broiler strain and from breeders tested to a low pullorum tolerance.
10. Have capital to finance 50 percent of the investment in buildings, equipment, and chicks. Feed organizations usually can help finance feed.

Use The Helpful Booklet Section

This monthly feature of Better Farming Methods has been enlarged to four full pages. It is being divided into two sections of two pages each.

One two-page section will run one month—the other the next month. They will continue running in alternate months so that each issue will have two pages of booklets different from those in the preceding issue.

This will mean that many new booklets will be added to this section. You will have additional help available for use in your work.

You will find this Helpful Booklet section in the back of each issue of Better Farming Methods. It is there for you to use.

Let it be of service to you. Check the booklets each month. Order those which you can use in your work. They will be of specific help to you.

The silo is built on the ground, then hoisted into place on the concrete foundation. A double thickness of plywood was used for the lower half, a single thickness for the upper portion. Panels are nailed and glued to 2"x4" studs, spaced 2' apart. Bolted forming hoops are removed after the structure is completed.

"Plywood Silo Is Excellent Investment; No Sign of Leakage or Spoilage,"

Says Dairyman Phil Rawnsley, Commenting On This Silo of Exterior Plywood Construction

IN 1949, the Extension Service and the Department of Agricultural Engineering, State College of Washington, designed and cooperated in building this plywood silo on the Phil Rawnsley farm, near Kelso, Washington.

"The silo has been more than satisfactory," Mr. Rawnsley says. "Its design is calculated to carry a load of about 70 tons. We have filled it with as much as 120 tons of grass ensilage. Even then there was no sign of leakage or distortion."

The silo is constructed by gluing panels of Exterior-type Douglas fir plywood to vertical 2"x4" studs. In effect, the glued joints give a continuous band of plywood in the form of a cylinder.

Washington State College Popular Bulletin No. 198—"Building a Plywood Silo"—has this to say about the structure: "One of the features of this type of silo is that no horizontal hoops are required after construction is completed. It has been found from experience that the plywood, with properly glued joints, has sufficient strength to withstand the pressures on a silo this size. The plywood may be thought of as a metal plate and the glue as the weld. The 2"x4" studs serve a twofold purpose—(1) to transfer the weight to the foundation, and (2) to act as a splice-plate for the plywood."

BRIEF SPECIFICATIONS

Height—32 feet
Diameter—12 feet
Weight—1,900 pounds
Capacity—About 70 tons
Foundation—Concrete

Washington State College Bulletin No. 198, containing step-by-step building instructions for this silo, may be obtained from Douglas Fir Plywood Association, Tacoma 2, Wash. or Department of Agricultural Engineering, State College of Washington, Pullman, Wash. Also available from Douglas Fir Plywood Association is a booklet "Better Farm Buildings With Exterior Plywood," which contains section on silos. (Offers good in U. S. A. only).

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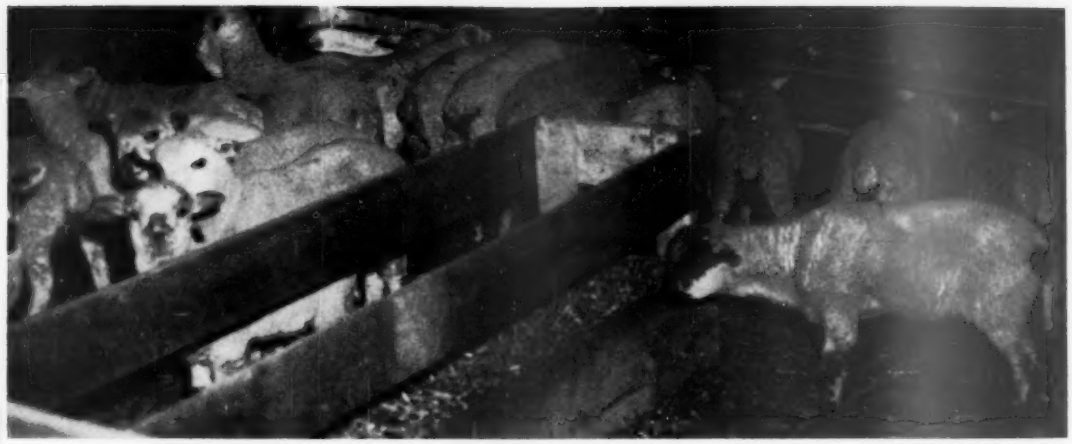

Here are a group of lambs which were dropped in October and November. Ewes were hormone treated to breed out of season. A 50 percent lamb crop was obtained.

Can Your Farmers Count on . . .

Two Lamb Crops?

By Dr. H. H. Cole
University of California

● ONE OF THE NEWEST wrinkles in raising sheep is the use of hormones. Sheepmen are experimenting with the possibility of getting two lamb crops per year.

At the present time, some of the hormones can be produced cheaply enough to use on large domestic animals. Therefore the question arises: Is our knowledge regarding their use sufficiently advanced to make definite recommendations?

In the control of sheep breeding, hormones have been used experimentally for the following purposes:

1. To bring on the breeding season earlier so that lambs will be dropped in November and December;
2. Increase the twinning percentage;
3. Breed ewes during lactation and thus make possible two lamb crops per year;
4. To induce estrus in ewes before the breeding season as a means of testing the fertility of the rams before breeding begins; and
5. Increase the sexual activity of rams which are sluggish during the early part of the breeding season.

Let us consider some general principles regarding hormone use. The breed associations need to consider what attitude they will take on the use of hormones in purebred animals. Such use might lead to a false reproductive record. In that event, offspring from these animals, managed without the use of hormones, might have inferior records as compared to their dams.

On the other hand, if an old ewe has demonstrated her ability as a breeder, one might be justified in using hormones to prolong her reproductive ability.

These questions are raised because, in due time, the breed associations will be confronted with them and answers must be given.

Hasten Breeding Season

Now to discuss the previously outlined suggested uses.

First, we will consider the use of hormones in bringing on an early breeding season. The late Professor Miller and I spent many years on this problem. In certain flocks during a given season, we were highly successful in breeding ewes early by injecting under the skin 300 International Units of equine gonadotrophin, the hormone present in the blood of pregnant mares. In other instances, we met almost complete failure.

The results have been highly erratic and to date the cause of this variation in response is unknown. There is strong evidence that better results can be obtained in the cool coastal regions than in the hot interior valleys of California. Thus it would appear that climate is a factor in determining the result, but absolute proof has not been furnished.

It also has been established beyond question that the length of daylight hours has an influence on the normal breeding season.

Next let us consider means of increasing twinning percentage. An English scientist found that if ewes were injected with 500 International Units of equine gonadotrophin, he could obtain an average of about two lambs per ewe. Some triplets and quadruplets were born.

Robinson injected the material under the skin on the 12th to 14th day of the cycle. Therefore to use this procedure, it would be necessary to determine the time of the last heat period by testing the ewes daily with an aproned lamb. The method could only be carried out under farm flock conditions—certainly the method could not be used on the range.

Only limited experimental data is available in regard to this procedure. But, it would appear to be entirely sound if the sheep breeder is willing to take the extra trouble of determining heat period prior to injection.

Two Lamb Crops a Year?

Considerable publicity has been given to the treatment of ewes while nursing their lambs in order to produce two lamb crops yearly. The exact procedures employed have not been published. Reports indicate that the best results were obtained by injecting ewes one month after lambing with gonadotrophin.

Approximately 50 percent of the ewes treated at this time became pregnant. According to published information the ewes in this study were "a scrubby lot

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Henry Zellmer

Says Alfred Zellmer, Larsen, Wisconsin

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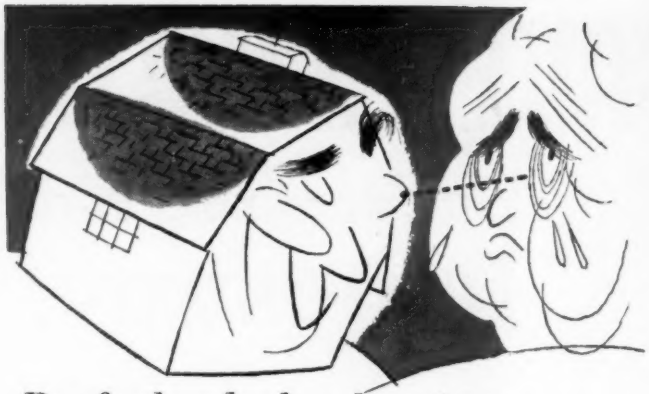

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Do you remember them? They were:

- ☐ How to Build a Farm Pond
- ☐ Principles of Contour Farming
- ☐ Instructors Guide to Grassland Farming
- ☐ How to Grow Bigger Corn Yields
- ☐ How Hybrid Chicks are Produced

Now, here is where you can help. Check the ones above which you used in your work. Then answer this question:

I used them, and would like to see more in the future ☐ Yes ☐ No

These inserts are sponsored by leading companies in the farm field. They are intended to be of specific help to you as an ag leader. We are anxious to know whether or not they are serving their purpose.

Clip out this box and mail to

EDITOR, BETTER FARMING METHODS
Sandstone Building Mount Morris, Illinois

of ewes of all breeds." One might expect quite different responses in different breeds. Consequently, sufficient information is not available to make definite recommendations at present.

Sterility of rams is quite common. Frequently a ram is used on a band of ewes and the breeding season is over before it is recognized that the ram is sterile. Consequently, the development of a method of testing the fertility of the rams before the breeding season begins has considerable merit.

Test Ram For Sterility

The injection of 10 or 15 milligrams of stilbestrol into ewes before the breeding season begins will usually bring into heat about two out of every three ewes injected. In our experience, stilbestrol does not stimulate the ovaries and we have not obtained any pregnancies when using ewes of this type for testing rams. Nevertheless it is advisable to take less valuable ewes for such purposes.

After the ewe is in heat the ram to be tested is allowed to mate with her and a sample of semen taken from the vagina with a small spatula. The semen sample is placed in a drop of 9 percent sodium chloride solution on a microscope slide and then examined at once under the low power of the microscope.

A high number of sperm with good motility is a fairly good index that the ram is fertile. If very few sperm with little motility are found, it is best to test the ram again in a few days. Although this method is a bit cumbersome, it will in many instances pay for itself many times by detecting sterile rams before the season begins.

Increases Ram Activity

Finally, here is a word about increasing sexual activity of rams which are sluggish during the early part of the breeding season.

Frequently rams of the mutton breeds are sexually sluggish in July and August. When it is desired to use these rams on crossbred ewes which will breed during July and August, it has proven helpful to inject the rams with 500 International Units of gonadotrophin. We have used equine gonadotrophin, but no doubt A.P.L. (chorionic gonadotrophin) would be equally effective. Very good results have been obtained in a number of instances.

The preceding discussion will indicate, I am sure, that hormones may in time be of considerable value in increasing the lamb crop. However, one should guard against over-optimism until a great many more tests have been made using different animals under different climatic conditions.

Certainly, hormones at the moment cannot be considered to be a remedy for the sheep industry.

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Thirty cows in 3 groups of 10 cows each were used. They were fed U.S. No. 1 extra leafy second or third cutting alfalfa hay and corn silage in the barn stabling seasons, and grass-legume pasture in the out-of-door periods.

Group I got no grain and Group II roughage along with grain at the rate of 1 pound to 6 pounds of 4 percent milk. Group III was fed roughage plus grain at a 1 to 3 ratio.

Every 6 months those cows meeting the requirements for potential production, age, weight, and stage of lactation were assigned to the project. Each cow's previous yield was the basis for her potential production. In the 5 year period, 50 cows were used and completed one or more 305 day lactations on 2 daily milkings.

Using the production of Group III as 100 percent, the results showed that the cows in the all roughage fed Group I produced an average of 81.6 percent as much as the liberally grained cows in Group III. The cows in Group II that got grain only at the 1 to 6 ratio, yielded 95 percent as much as the animals in Group III.

The average yield per lactation by the cows in the different groups was:

Group I—8,410 pounds of 4 percent milk

Group II—9,741 pounds of 4 percent milk

Group III—10,313 pounds of 4 percent milk

In Group II the average grain ration of 1864 pounds per cow is credited with 1331.1 pounds of additional milk over the yield of the cows in Group I, or only .71 pound of milk from 1 pound of grain. The 3677 pounds of grain given per cow in Group III were apparently responsible for only 1902.7 pounds of milk or .51 pounds per 1 pound of grain.

These data show clearly that ample amounts of excellent roughage available through the year, has a wonderful milk making potential in the case of any well bred herd. The grain cost and milk price relationship must ever be kept in mind when determining the amounts of grain to feed. In addition it is only by knowing a cow's daily production that one can know definitely whether her response to less grain or more is a paying proposition under any program of roughage feeding. (*E. N. Perry, Rutgers University, New Brunswick, N.J.*)

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AERO* CYANAMID, Special Grade defoliates cotton and soybeans; kills tomato foliage and potato tops to permit earlier, better harvests. Also effective in pre-emergence weed control in onions and for post-emergence weed control in canning peas and small grains. Supplies 21% nitrogen.

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AERO CYANAMID, Granular, 20.6% nitrogen, forms soil-building humus when plowed under with cover crops. Ideal for direct application. Also used for control of weeds in tobacco plant beds and for other special uses.

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AERO-PHOS® Florida Natural Phosphate replenishes the natural phosphorus reserve in the soil and makes it available to crops over a period of several years. Low in cost, easily applied in any season.

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Cut Livestock Feeding Costs with . . .

Grass–Legume Forage

By Walter Weiss
Soil Conservation Service

Most of the sheep ration is pasture. However, sheep won't thrive on just anything and high quality legumes are needed.

Dairy cattle thrive on high quality forage. Nearly 83 percent maximum production can be obtained by using forage only.

Feeding steers on good grass legume forage has many advantages. Cheap gains are possible by maximum use of forage.

This sow's ration during pregnancy was approximately 40 percent alfalfa-brome. Pigs average three pounds plus at farrowing time.

● GRASSLAND HUSBANDRY appeals to many farmers as the best method of farming to obtain maximum return without harming the soil. It provides for sufficient acreages of adapted grass-legumes, depending on soil needs. It provides for the production of high quality forages to be eaten by livestock with grain supplementing rather than dominating the feeding practices.

For the farmer here is the problem. How can he obtain the greatest production of feed units from the grassland acres? How can he get the most use of these forages as a feed with the different classes of livestock?

Forage for Beef Cattle

There are two methods of fattening beef cattle: (1) feeding on pasture, and (2) feeding in dry lot. Farmer experience and research work prove that when high quality productive pasture is used, only about one-half to two-thirds as much corn is required.

During the past five years the cattle feeding results at the Soil Conservation Experiment Station, Clarinda, Ia., show that steers on quality brome and alfalfa pasture without grain have gained pound per pound with those full fed in dry lot for the first 60 days of the pasture season.

As pointed out at the Beef Cattle and Land Institute at Albert Lea, Minn., in September, quality forage was worth $64 to $114 per acre in beef feeding on grass. Drouth was the limiting factor on the farm with only $64 per acre return for the grass.

To get the maximum benefits from forages in beef cattle feeding: (1) Eliminate as much dry lot feeding as possible. Rough the cattle or calves through the winter on quality hay and/or grass silage. Limit gain to not more than three-fourths to one pound per head daily. This can easily be done without grain.

(2) Provide high quality rotation pasture such as brome-alfalfa, red clover mixture. Grass should constitute around 50 percent of the leaf part to reduce the hazard of bloat. If troubled with bloat, have dry hay available.

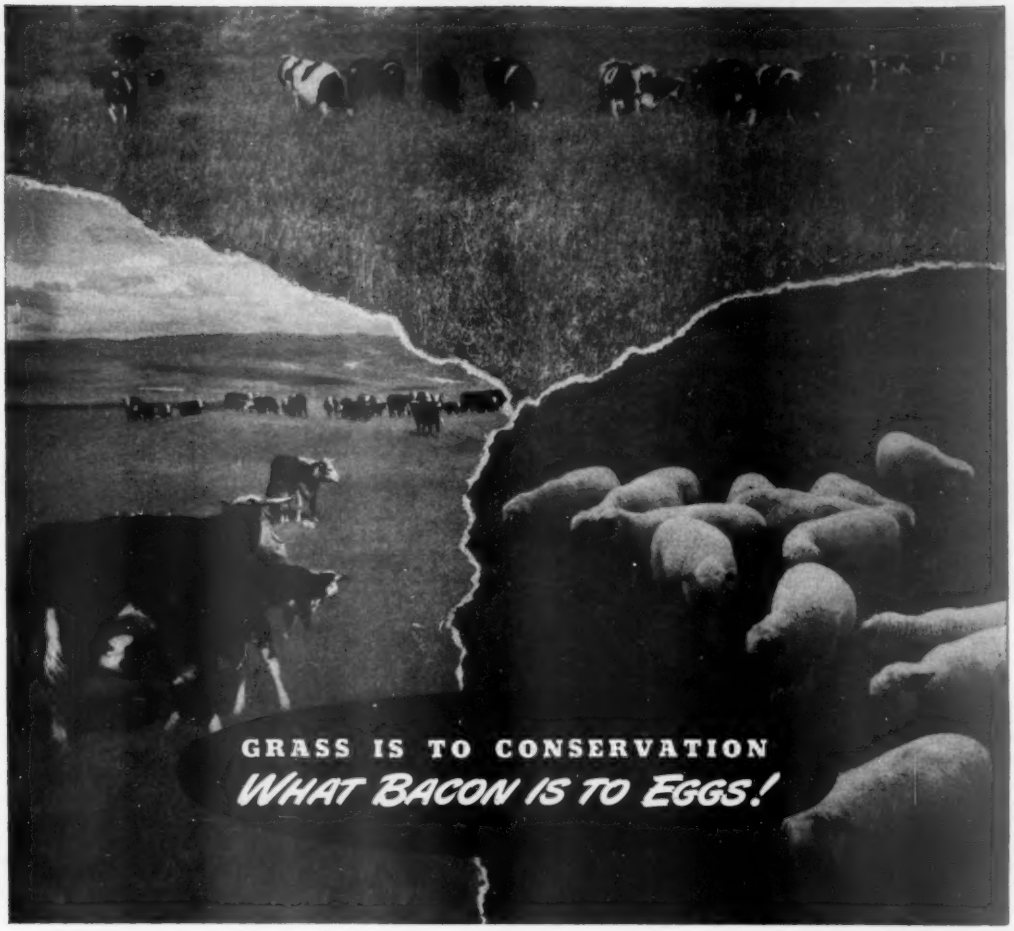
(3) Move the feed bunks out into the rotation pasture. Why haul all the feed to the cattle in dry lot and then haul the manure back out? Let the cattle harvest the crop and spread the manure.

(4) By feeding high quality pasture, steers will obtain the protein requirements from the forage.

(5) Utilize the low quality forage and unimproved grassland acres with the cow herd.

Dairy Cows Thrive On Pasture

The dairy cow is a great roughage burner. At the LaCrosse, Wis. Soil Conservation Experiment Station, the use of longer grassland rotations plus the use of fertilizer has made it possible to increase the dairy herd from 9 to 21 milk cows. During the same period, butterfat production was increased from 2400 to 5900 pounds. Furthermore, this grassland program reduced the cost of feed purchased from $27 to $8 per cow.



Find a farm planned for soil conservation, and you'll find grass—grasses and legumes that bind soil against erosion, and build it up to produce the cultivated crops.

Find grasses, and you'll find livestock.

Find livestock, and you'll find better farming.

Grasses make inexpensive feeds, inexpensive to grow, inexpensive to harvest. This is partly because grazing livestock helps with the harvest, but there's another reason. Modern farm equipment is built to harvest the forages inexpensively. The power mower, the automatic baler, the field forage harvester, and the loader—such equipment harvests roughages fast and easy, puts them in stack, barn, or silo with less expense.

For soil conservation, grasses, livestock, and power equipment make a great combination. You can help sell it.

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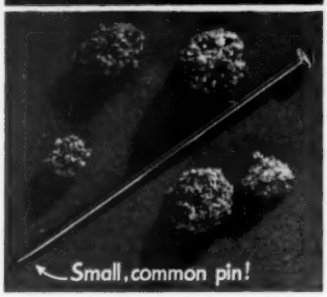
Development in Crop Feeding



Teachers of agriculture and farm leaders know the value of pictures in explaining something new. That's why we print the above picture.

In that picture are several particles of Swift's New Process Red Steer Plant Food. The common 1-inch pin shows the degree of magnification.

Notice the fused appearance of each particle. If each of the various growth elements were colored differently, you could see how each granule is similar in composition to every other granule, regardless of size. This means that each granule is equally efficient in supplying crops with the nourishment they need.

Swift's new method of chemically hitching growth elements together was worked out by scientists in Swift's Plant Food Research Laboratory. They wanted to produce a plant food in which the ingredients wouldn't separate out when drills and planters joggled over the fields. And so users of Swift's Red Steer now get this extra advantage.

Chemical hitching results from a manufacturing process that combines complete mechanical mixing with complete chemical processing. Swift's New Process Red Steer feeds crops uniformly, especially so, now that each granule is a morsel of complete nourishment.

To keep yourself currently posted on new developments in the plant food field, we suggest you get acquainted with your local Authorized Swift Agent or dealer. He has interesting case histories, literature and facts which may be of value in your work. He can also arrange a visit with one of Swift's Plant Food field representatives who are trained to assist you in solving any plant food problem.

Swift's New Process
RED STEER Plant Food
Buy Swift's Plant Foods at the sign of the RED STEER
Ask about *Blenn* & Brimm Swift's Specialized Crop Makers

The use of forage through the dairy cow is best done by (1) providing a yearly equivalent of six tons of high quality forage per cow in the form of pasture, grass silage, and hay; (2) improving permanent pastures or developing sufficient rotation pastures to provide pasture throughout the growing season; and (3) providing producing cows with all the good hay or grass silage they will eat throughout the pasture season.

Hogs Will Pasture, Too

Only an average of 5 percent of the feed units used in pork production in the United States comes from forages, leaving 95 percent to come from concentrates in terms of grain.

The experiment stations say that 15 percent of the feed units needed can come from forage. In the Corn Belt the corn intake in a 200 pound hog can be reduced from 20 to 12 bushels by using high quality forage. The Illinois station obtained nearly 1,000 pounds of pork from an acre of good forage.

Don Frakes, Iowa farmer, found that high quality forage can be 26 percent of the hog's ration. Frakes produced 82,793 pounds of pork with 3,105 bushels of corn, 590 bushels of oats, and 111,550 pounds of second cutting brome-alfalfa hay. The feed required to produce 100 pounds of pork was equal in value to 4.1 bushels of corn and 135 pounds of hay plus small amount of protein supplement.

To best use forages in pork production: (1) Regulate time of farrowing to allow maximum time for utilization of high quality forage; (2) provide rotation (grass-legume) hog pasture; (3) increase forage use by reducing concentrate feeding after pigs reach 75 pounds; and (4) fatten sows on quality pasture and corn.

Improve Sheep Pasture

With over 95 percent of the feed units consumed by sheep in the United States coming from forages, the problem is not one of consuming more forage but one of providing high quality forage.

Too often it is thought that poor pasture and low quality forage can be efficiently utilized by sheep. Sheep, like any other class of livestock, respond to high quality forage. With high quality forage fat lambs can be put on the market without any grain.

If available, a little grain is all right just before and at lambing time. After weaning the ewes can be put on low quality pasture.

With sheep production: (1) Provide high quality pasture on which to fatten lambs; (2) supply breeding flock with high quality legumes, grass, hay, and silage during winter months; and (3) when feeding out western lambs, quality hay and grass silage are grain savers.

Work at the Cornell experiment station indicates that good grass pasture saved from 7-22 percent on feed intake, as compared with no pasture or bare range. Moderate feed restrictions on good pasture encourage greater grass consumption without influencing weight, maturity, or mortality. Drastic feed restrictions on pasture saved 22 percent on feed but resulted in a lower average weight at 6 months of age.

In maximizing forages with poultry (1) set aside an acre of adapted forage for each 250 birds; (2) clip back herbage to 6 inches to increase the supply of tender succulent green feed; and (3) use up to 15 percent alfalfa meal in the laying mash.

★

Antibiotic Aids Hog Growth

In a swine nutrition experiment, four different antibiotics were used as animal feed supplements. Of the four, terramycin made the greatest contribution to hog growth. Results of these tests were reported at the annual meeting of the American Society for Animal Production.

The four groups of hogs used in the experiment were given 9 grams of antibiotics per ton of finished feed. The tests were carried out to market weight under practical commercial feeding conditions. At the end of 16 weeks, the terramycin-fed group had gained 18 percent more weight than the control pens, the streptomycin group 15 percent, the aureomycin group 11 percent, and the penicillin group 7 percent.

Very dramatic gains in weight with all four antibiotics were obtained in the early weeks of the experiment.

Commenting on the stability of the antibiotics, a factor extremely important in animal feeding, the report said that terramycin proved to be far more stable than many forms of penicillin in commercially mixed feeds.

As evidence of the fact that the weight gains were not primarily fat tissue, the carcasses were graded after slaughtering. The terramycin-fed hog carcasses were judged to be of top quality without excess fat.

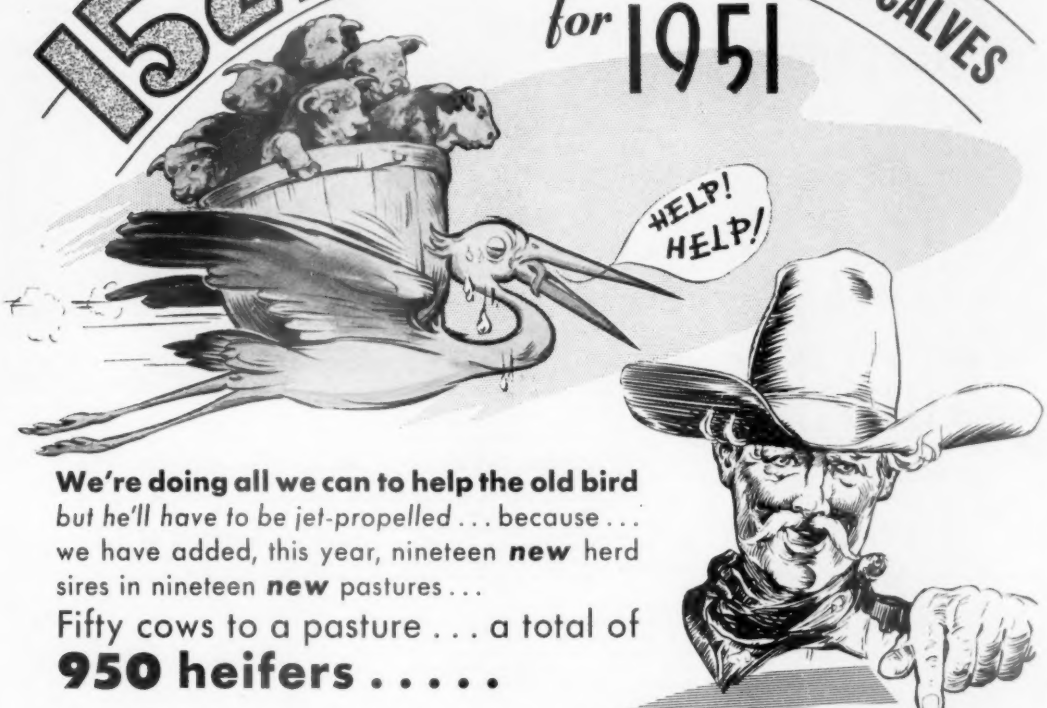
★

Slide Film On Cattle

How to judge cattle is one of the most difficult problems encountered by any teacher. A film strip consisting of 27 color photographs on 35mm film is now available as a teaching aid. The film is intended to show the framework of production—that is, those qualities in a cow which make for desired production and a long useful life.

The script is based on the uniform score card of the Purebred Dairy Cattle association. Write the American Guernsey Cattle Club, Peterborough, N. H., for additional information.

1521 requests for Mill Iron BULL CALVES for 1951



We're doing all we can to help the old bird *but he'll have to be jet-propelled . . .* because . . . we have added, this year, nineteen ***new*** herd sires in nineteen ***new*** pastures . . .

Fifty cows to a pasture . . . a total of

950 heifers . . . . .

We think our herd bulls are making great headway in producing the **UNIFORM QUALITY** and **TYPE** we want in our cattle.

Our 1950 registration was 1715—

At this rate it won't be long 'till we can meet the increasing requests of all buyers.

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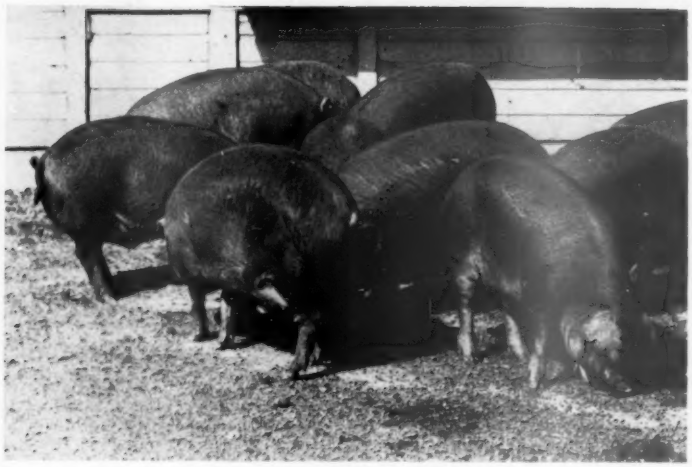
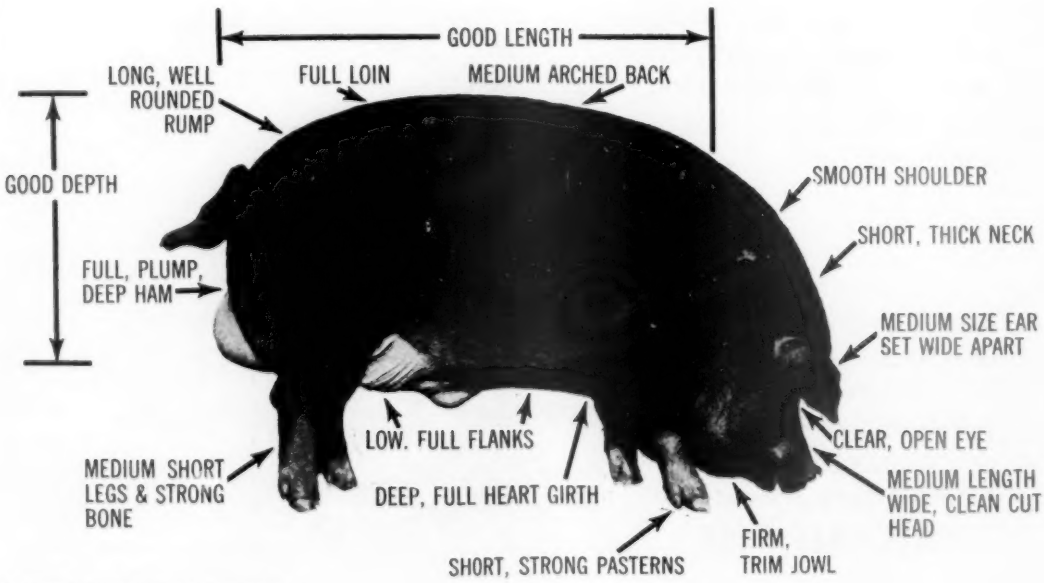
Practical Lesson in HOG JUDGING

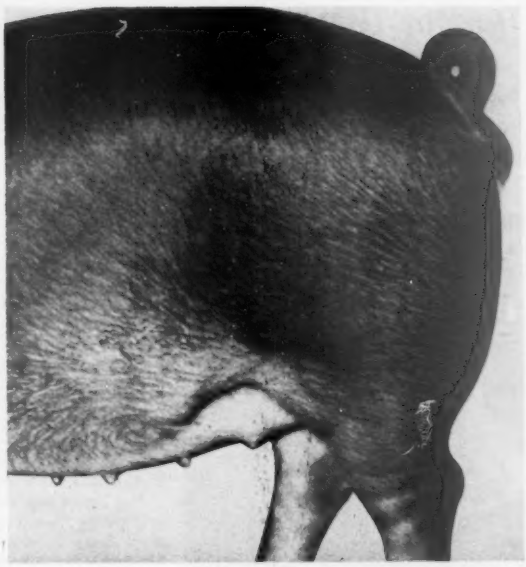
Photos Courtesy The Duroc News



In judging hogs, first observe them from a distance. This will enable you to note their general appearance. As you look at them, follow a definite plan in judging them as individuals. For example, begin at the head and work towards the rear, noting the confirmation of head, neck, shoulders, front feet, back, flanks, belly, ham, and back legs. Then, try to evaluate individual hogs according to the general characteristics which are outlined on the hog pictured below. These desirable points are standard on most of the common breeds of hogs.



The head of a hog should be broad. Eyes should be set well apart in a clean cut face, and ears should be medium sized and set well apart. Avoid wrinkles above or below the eyes which may indicate building up of fat that will cause the eyes to partially close and bring on some blindness. Avoid a head which is narrow, long, with large drooping ears, and lacking in fine cut features.



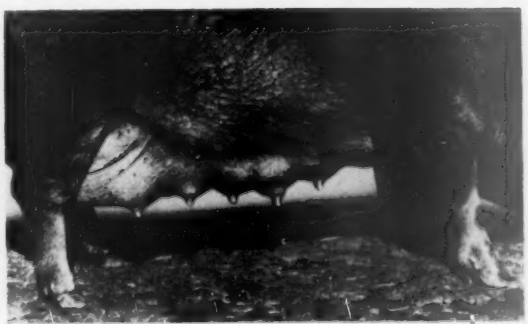
Look closely at the rear development of hogs. Good hogs should possess a well-rounded rump, full deep ham, and stand on strong, straight legs. The flank should carry well down and the hog should carry good width over the rump. Avoid a distinct slope to the rump, long legs, cut up flank, and a short ham.

Left—Choose a hog whose legs are strong and sturdy. They should be straight, set well apart, and of medium length with good bone.

Right—View the hog from the rear and note the top line. Look for a smooth, wide, loin and rump. See that the width carries well down the animal to the legs. Look for good spring of ribs and width over the shoulders.

Left below—Pick a hog which has good length and depth of body. Look for a well arched back and see that the hog stands on four good legs. Here is the place to take into consideration all the individual characteristics of the hog and balance the good points against the bad.

Right below—In judging sows or gilts, look closely at the udder development. Be sure teats are well spaced, sound, and of sufficient number to raise an average litter.

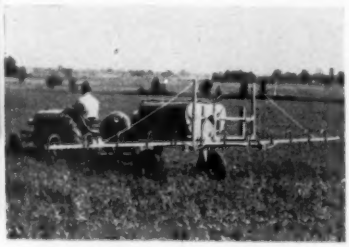


Here Are Up-to-the-Minute Uses for . . .

Sprayers and Dusters

By EARL ANDERSON
Nat'l Sprayer and Duster Assn.

Disinfecting farm buildings.



Killing insects in alfalfa.

● WHEN THE GREENBUGS struck at the seedling wheat fields in Oklahoma and other parts of the Southwest last March, farmers for the first time were able to effectively strike back. Later, when the large overwintering population of European corn borers threatened the corn crop in the Midwest, farmers had at their disposal positive means for protecting their crop.

The farmers' weapons in each case were the new farm sprayers, which have been developed into multiple-use machines, and the new modern dusters.

The list of new uses for this equipment is growing rapidly with additions coming from many different sources. Each new product successfully marketed by a pesticide manufacturer either broadens present fields of use or opens the door to new ones. The research workers of the state and federal experiment stations are also constantly extending the fields of use of this equipment in formal research projects.

Some of the important new uses are suggested by farmers whose ingenuity has contributed to most of the major farm equipment developments in the past. Their vision of use is not limited to pesticides, but includes the full range of farming operations. And the experienced equipment manufacturers, through their research staffs and field men are continually developing new equipment.

Fruit—Vegetable Production

Sprayers and dusters were first developed for the express purpose of protecting fruit and vegetable crops from insects and disease infestations. Today more than half a century later, very little quality fruit or vegetables reach the market without the benefit of such protection.

The new automatic spray heads which can be attached to any high pressure

Controlling flies on cattle.

Spraying orchard trees.

sprayer and the new concentrate sprayers have greatly reduced the labor and time required for spraying orchards and groves. They have contributed to the introduction of several new important practices such as chemical blossom thinning, the spray application of plant nutrients, and pre-harvest sprays.

These new practices, now undergoing widespread test, offer growers real hope for overcoming some major problems. Thus, spray application of certain chemicals to thin fruit blossoms may replace the laborious and costly hand thinning methods used to grow larger fruit. This may change the bearing habits of some trees from biennial to annual.

Trees respond quickly to foliage feed-

High clearance sprayer for second brood corn borers.

Spraying for first brood corn borers.

NEW!

Soil Conservation Color Film . . .

"Neighbors of the Land"

For the first time here's a documentary-type, informational film, dramatizing the creation, development and achievement of a typical *neighbor-group* soil conservation program. "Neighbors of the Land" is devoted expressly to conserving soil and water, and portrays what can be accomplished when neighbors work together.

Oliver films are loaned without charge to agricultural leaders and appropriate groups—county agents, extension workers, vocational agriculture teachers, soil conservationists, farm clubs and civic organizations. Schedule this new full color, 16 mm. sound movie through your neighborhood Oliver dealer or branch office, or write to The OLIVER Corporation, 400 West Madison Street, Chicago 6, Illinois.

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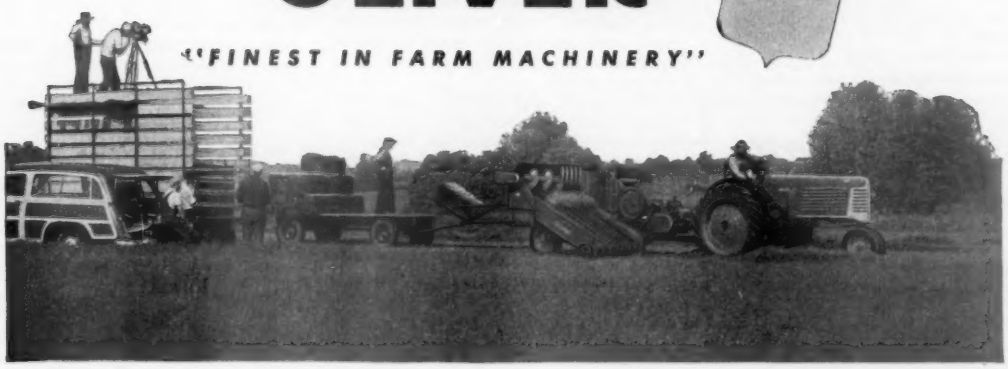
"FINEST IN FARM MACHINERY"



CONTOUR FARMING

WHY IT IS MORE SUCCESSFUL WITH BRILLION

Farmers all over the country have demonstrated that it is easier and cheaper to get a good stand of grass or legume with the Brillion Sure-Stand Seeder.

The Sure-Stand Prevents Seed Waste. Only one-half to one-third of the usually recommended amount of seed is required by the Sure-Stand seeding method of placing the right amount of seed in the top half inch of soil where it can germinate.

The Sure-Stand Prepares a Better Seed Bed. In one trip across the field, the Sure-Stand pulverizes lumps, accurately meters out the seeds, places them in the top half inch of soil and gently firms the ground over them.

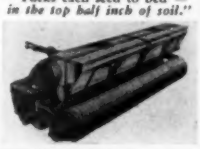
The Sure-Stand Gets a Better Stand. A higher percentage of the seeds germinate, the plants are more sturdy; and you get a good, even stand with less labor and less seed.

The saving in seed is usually enough to pay for the entire cost of the machine in less than two years.

BRILLION IRON WORKS, INC., Brillion, Wis.

Brillion

"Tucks each seed to bed — *in the top half inch of soil.*"



Sure-Stand Grass Seeder, Pulverizer and Packer

ing of trace elements and essential plant nutrients used with an insecticide in a regular spray application. Certain hormone sprays, applied before harvest, are credited with greatly reducing wind or pre-harvest drop. This permits the fruit to reach maximum size and color and lengthens the picking period by a week or more.

In the commercial production of truck crops, pale colored lettuce takes on a top market green color when given a pre-harvest nutrient spray treatment.

Recent introductions are the high clearance self-propelled sprayers and dusters. Corn ear worms and both first

Here is a modern sprayer in action. When handling all types of sprays and insecticides, every precaution should be taken. All directions for handling and use appearing on the label should be followed minutely.

and second brood European corn borers can be effectively controlled with these, thus permitting the marketing of top quality sweet corn.

Also the cost of weeding such crops as carrots has been greatly reduced by spraying with certain oils. Experiments are continuing with pre-emergence spraying with selective chemical weed killers for control of weeds in a number of vegetable crops.

The sprayer is fast replacing the cattle dipping vat in the range country. It provides a cheaper and more flexible method of treatment. The increase in rate of animal weight gain made possible by fly spraying has been one of the major achievements in the livestock industry in the past decade.

The sprayer may play an equally important role in ridding the range of sagebrush which is crowding out the grass. In tests conducted at the USDA Southern Great Plains Field Station, livestock profits were doubled by spraying this brush.

Special chutes are now available for use with power dusters to protect sheep from range insects. These units are designed for easy transport and fast treatment of large flocks. They are especially useful in dryland areas since no water is required.

Weed control continues to be the top job for spraying in this area. Weeds are the number one menace and spraying has been the most effective weapon. In addition to their use for greenbug control, the sprayers are being used effectively in another role—protecting stored wheat from weevils and other insects.

For many years southern farmers have depended on dusters for poisoning cotton insects. Dusting is still the principal means of poison application. In certain areas these dusters are now also being used to apply chemical defoliants to the cotton plants to facilitate machine picking.

In some sections of the southwest, cotton farmers have turned to sprayers to perform two important jobs—cotton poisoning and weed spraying. Spraying for insect control is commonly combined with the cultivation operations for greatest efficiency. The successful control of weeds in the cotton row by spraying promises to break the last major barrier to complete mechanization of cotton and greatly reduce the cost of production.

Pecan growers in one area in Georgia in tests over the past five years have increased their yield as much as tenfold by spraying the trees with a suitable fungicide.

Many Jobs In General Farming

The farmers engaged in diversified farming have the opportunity to use their sprayers for more jobs around the farm than any other group. The jobs most frequently performed include spraying livestock and buildings for fly control, applying whitewash and other cold water paints, weed spraying, grasshopper control, cleaning and disinfecting farm buildings, and cleaning farm machinery.

Other jobs include spraying seed crops for insect control, fighting grass and brush fires, corn borer control, spraying grain bins and their contents for insect control, and controlling brush in fence row and pasture areas.

A variety of jobs such as these requires a versatile type of sprayer. To meet these requirements the principal manufacturers now produce the multiple-purpose type sprayer available in many different models.

It is characterized by a self-contained tank, a positive displacement reciprocating type pump such as the piston or plunger, and a mechanical type agitator. On some farms the larger hand sprayers or the wheelbarrow type of equipment may meet the principal spraying needs. On the larger farms, at least some hand equipment is required to supplement the power equipment.

Prospects Bright

A brief review of some of the research projects now in progress throughout the country suggests some exciting new uses for equipment in the future. In fact,

When writing advertisers please mention *Better Farming Methods*

some of these new uses may even dwarf those of the present.

As we learn more about the nutritive needs of plants, the practice of supplying missing nutrients by means of foliage sprays may expand very greatly because of the speed with which they are absorbed by the plant.

The field of plant growth regulators is challenging many scientists today. We already have preliminary reports of spray materials which, for example, may slow down the rate of growth of grass in our house yards. This would require less frequent cutting. When applied to fruit trees, it would retard the blossoming until safe from frost in the spring.

In trial experiments last summer, alfalfa caterpillars were successfully destroyed by spraying them with a virus disease. In another series of tests a new type of insecticidal spray applied to plants was absorbed by the plant. It remained for a brief period poisoning any insect which attempted to feed on the foliage.

The tremendous expansion in the farm use of sprayers and dusters in the past decade is considered by many to be one of our most important farming developments on record. Based on that record, the future outlook is bright.

★

New Grain Dryer Developed

A new dryer that speeds up considerably the drying of shelled corn and small grains has been developed by the University of Illinois College of Agriculture and the U. S. Department of Agriculture.

In present models you have to turn off the heater while you're cooling the batch of grain you just dried. But the new dryer handles two batches at once.

The test model has performed well in laboratory tests at Urbana. In one run 75 bushels of shelled corn dried from 18 to 12 percent moisture in two hours at a cost of 1 cent a bushel for fuel and power.

Our Constitution Visualized

A book entitled "Your Rugged Constitution" has been published by the Stanford University Press, Stanford, Calif.

This book is a visual translation of our basic political document, the Constitution of the United States. The book presents the Constitution as a living, working model for good government. Each clause of the Constitution is isolated and printed in large, easy-to-read type; running commentary and lively drawings explain the significance of each idea and make every word understandable.

It is a book which can be extremely useful in teaching the value and importance of our American Constitution to students and adults alike.

See the DIFFERENCE!

A dull screen robs your pictures of important details.

A Da-Lite Screen puts life and sparkle in every scene.

And You Will Specify DA-LITE (Reg. U. S. Pat. Off.) SCREENS

Scene from International Harvester Company's new film "Soil, Water and People."

Da-Lite Model C may be hung from wall or ceiling or set in Da-Lite floor stand.

A soiled or makeshift screen can rob your teaching films of more than half of their brilliance and clarity. A new Da-Lite Crystal-Beaded screen will show them at their brightest and best. Da-Lite's leadership in screen engineering since 1909 and large manufacturing facilities assure top values in every price range. Ask your dealer for a demonstration. Write for literature and sample of Da-Lite Crystal-Beaded fabric.

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FIRST with the Finest in Projection Screens SINCE 1909

JUNIORS, HERE'S MORE PROOF . . .

JERSEYS ARE YOUR BEST BET!

Opal Crystal Lady, owned by Ralph Cope, Jr., has recently become the only cow of any breed to give 1,000 pounds butterfat in three consecutive lactations on twice-daily milking. Another record added to five already held by Jerseys over all other breeds! It is more proof that when you work with Jerseys, you work with the best. Milk checks start coming in sooner because Jerseys mature quicker, calve earlier, produce more efficiently. Buy your Jersey heifer now for that 4-H or FFA project.

THE AMERICAN JERSEY CATTLE CLUB

Department B — Columbus, Ohio

aldrin

THE NATIONAL HOPPER STOPPER

Only two ounces per acre for control.

'*Four million* acres were treated with aldrin last year . . . with such deadly effect that aldrin has now become the national hopper stopper.

aldrin

SHELL CHEMICAL CORPORATION

Aldrin is manufactured by Julius Hyman & Co., and is distributed by Shell Chemical Corporation, 500 Fifth Ave., New York 18. Aldrin is available under the brand names of leading insecticide manufacturers. Consult your local dealer and county agent.

What's NEW in "AG" Chemicals

TCA—Weedy Grass Killer

The chemical TCA (sodium salt of trichloroacetic acid) has proved itself a worthy foe of perennial weedy grasses. It also is showing promise in killing annual weedy grasses in certain TCA-tolerant crops, such as sugar beets and table beets, flax, alfalfa, and other legume crops. If definite treatment practices and dates can be established by future research, TCA will become one of the farmers most dependable killers of grass weeds such as quackgrass, Johnson grass, and Bermuda grass.

TCA does its damage as it comes in contact with perennial weed roots. Contact with above-ground foliage has little effect on the weed, as the poison is not transferred from the foliage to the roots. Much of TCA's success, therefore, depends on leaching of the chemical down through the soil to root level. This means the poison should be applied at a time of year when soil moisture conditions or rainfall can be counted on to leach it.

The advantage of using cultivation practices along with TCA—especially with quackgrass—has shown up in numerous experiments. In general, a single soil pulverizing cultivation or a turning of the quackgrass sod at least doubled the efficiency of the killer.

Used as an annual weed killer, TCA has been found to control seedlings of green and yellow foxtail, barnyard grass and panic grass, without damaging sugar beets and table beets. TCA was applied as a pre-emergence treatment.

★

New Insecticide Kills Flies

A new insecticide for dairy barn use, combining two modern hydrocarbon compounds—methoxychlor and lindane, has recently been developed. It was developed to give dairymen quick kill of flies and also to keep barns fly-free for a number of weeks following each spraying.

Both these chemicals have been approved by the U. S. Department of Agriculture for fly protection in dairy barns. When used properly, they do not contaminate milk. Combined in proper proportions, the two chemicals supplement the effectiveness of each other. This new insecticide, called Du Pont Dairy Barn insecticide, may be used for occasional application to dairy cattle to control mange and lice. However, it is not recommended for fly control on animals due to the presence of lindane.

One pound of the material in three gallons of water will cover 1,500 sq. ft. of surface.

★

BHC Helps Control Scabies

Encouraging tests with benzene hexachloride (BHC) to secure better control of sheep scabies—skin inflammation caused by mites—have been made. A single treatment in an unheated dip by Bureau of Animal Industry workers of the U. S. Department of Agriculture has given good results.

It should be used against sheep scabies in a quantity to provide 0.06 percent gamma isomer. This concentration is higher than that required under ideal conditions, and is deemed ample to provide for all allowances to be made under farm and ranch operations.

BHC, however, should be confined to flocks of sheep which are not intended to be shipped out of the state. There is no practical, reliable vat-side test to tell the actual strength of the BHC batch in the vat at all times.

A disadvantage to the widespread use of the newer chemical is that the wettable BHC powder is not soluble in water. This means that it will tend to settle in the bottom of the dipping vat unless some mechanical stirring device is used, or sheep are kept going through it constantly to splash and mix the liquid material.

Moreover, this insoluble wettable BHC is apparently taken up by the fleeces of the sheep in somewhat greater proportions than that originally suspended in the water. This calls for increasing the proportion of the wettable material when replenishing the vat contents.

★

New Rabbit Repellent

A four-page folder describing an effective rabbit repellent is available upon request. The material, called "No-Nib'l," has received widespread acceptance for the protection of vegetable crops, ornamental plants, and flowers from feeding damage of rabbits. It will not harm plants or soil, is non-injurious to the rabbits, other animals, or birds. It can be used as a dust or spray. This product is manufactured by B. F. Goodrich Chemical Co., Cleveland, O.

When writing advertisers please mention *Better Farming Methods*

DON'T WAIT...

GET YOUR aldrin NOW!

Be ready to KILL COTTON INSECTS in HOURS instead of days

Over 2,000,000 pounds of this powerful cotton pest killer were used during 1950 (aldrin's first season)!

This amazing first-year acceptance is due to two sound reasons:

1. aldrin is the most powerful killer of boll weevils, thrips, tarnished plant bugs, rapid plant bugs, cotton fleahoppers and grasshoppers, yet formulated and proved on a belt-wide scale.

2. aldrin controls these pests with *just 4 ounces per acre* on mature cotton . . . one to two ounces in early season.

aldrin kills in hours instead of days! Cotton pests die within a few hours after aldrinizing. Growers are enthusiastic about such fast action which cuts crop damage. Insects on *four acres* are quickly controlled with *just one* pound of aldrin.

Less risk from rain. Dust or spray aldrin insecticides without hesitation . . . after a few hours most of the lethal work is completed . . . if it rains next day you don't have to re-do your work.

Your dealer will gladly give you more information on aldrin. *Don't wait—now's the time to decide.*

aldrin

SHELL CHEMICAL CORPORATION

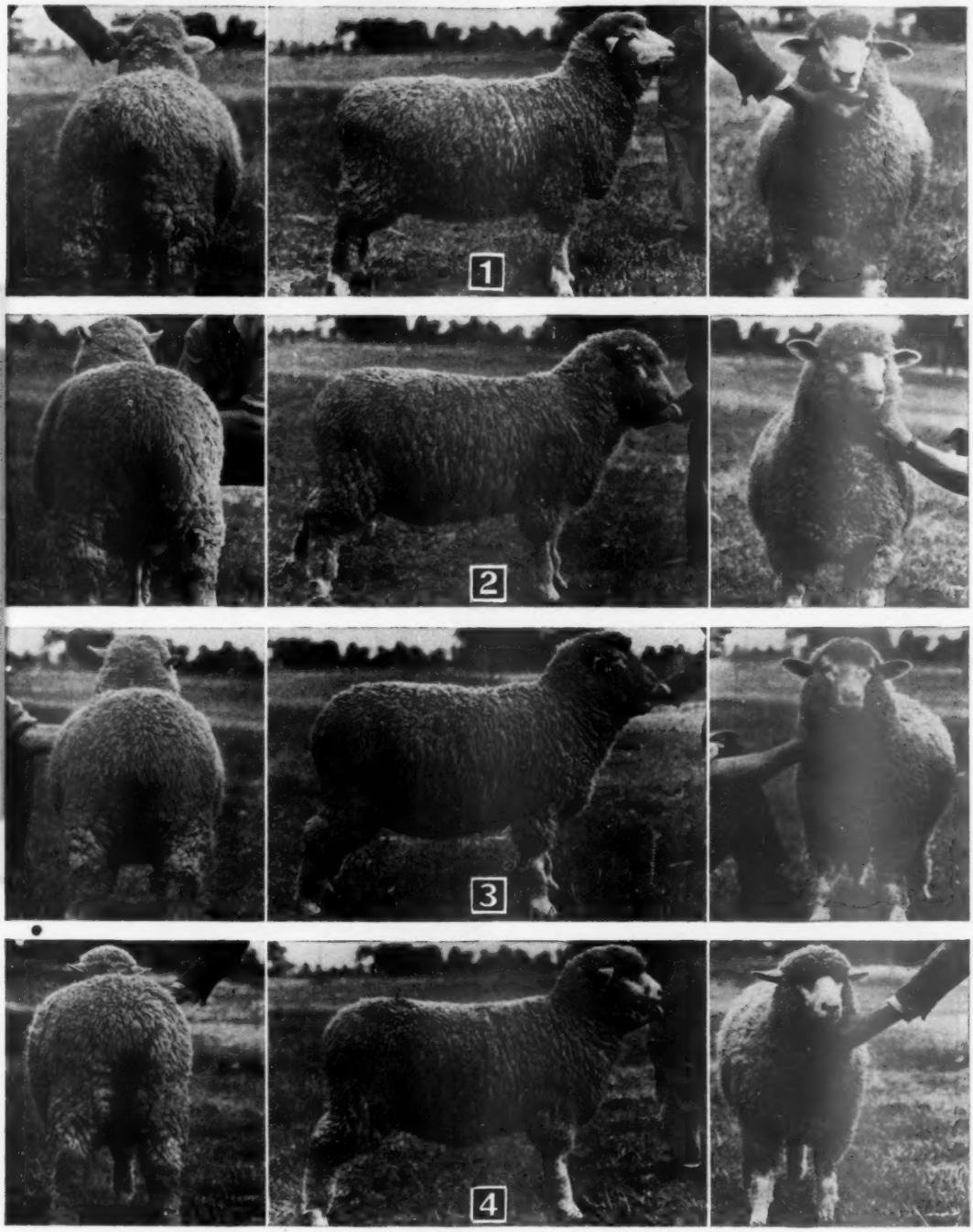
Aldrin is manufactured by Julius Hyman & Co., and is distributed by Shell Chemical Corporation, 500 Fifth Avenue, New York 18, N.Y.

Aldrin is available under the brand names of leading insecticide manufacturers. Consult your local dealer and county agent.

Judging PICTORIAL

HOW WOULD YOU PLACE THESE COLUMBIA SHEEP?

(Turn To Page 87 for correct placing)



RATS can be useful

White rats, for example, when used for measuring vitamin D_2, render an indispensable service in connection with feeds, foods and pharmaceuticals.

Although there have been many attempts made to develop rapid, inexpensive chemical methods for general use in vitamin D_2 assay work, results have as yet been unsuccessful. That's why the expensive, time-consuming "rat assay" is still the method used for vitamin D_2 determination.

It is difficult to believe that a tiny bit of vitamin D_2 so small that it is invisible to the naked eye can actually be measured. However, by means of the laboratory or "white" rat this seemingly impossible task can be accomplished.

Would you like to know how a rat assay is made, how vitamin D_2 is measured? Dr. G. C. Wallis, our Animal Nutritionist, who has had many years' experience with rat assays for vitamin D_2, describes this test in a new bulletin entitled "How Vitamin D_2 is Measured." This bulletin is available to Vo-Ag teachers, County Agents and others interested in good nutrition.

For your free copy of this special bulletin, "How Vitamin D_2 is Measured," mail the coupon below.

FLEISCHMANN'S
FIDY
TYPE 36-F
IRRADIATED DRY YEAST
GUARANTEED VITAMIN D POTENCY
At least 36,000 U. S. P. Units per gram, or 16,000,000 units per pound.
GUARANTEED ANALYSIS
Protein (min.) 40.0%
Fat (min.) 0.5%
Crude Fiber (max.) 2.0%
N-Free Extract (min.) 33.0%
Ash (max.) 9.5%
Moisture (max.) 8.0%
AN ECONOMICAL SOURCE OF VITAMIN D2
Money will be refunded if not as guaranteed
STANDARD BRANDS INCORPORATED
595 Madison Ave. New York 22, N. Y.
Net Weight 100 Pounds

A rat assay for every batch stands behind our potency guarantee on Fleischmann's Irradiated Dry Yeast.

Fleischmann's F·I·D·Y IRRADIATED DRY YEAST RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

GET YOUR COPY—

SEND COUPON TODAY!

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Desk BFM-3, Agricultural Dept.
595 Madison Avenue, New York 22, N. Y.
Send me FREE
new **informative bulletin by Dr. G. C. Wallis**
"HOW VITAMIN D_2 IS MEASURED"

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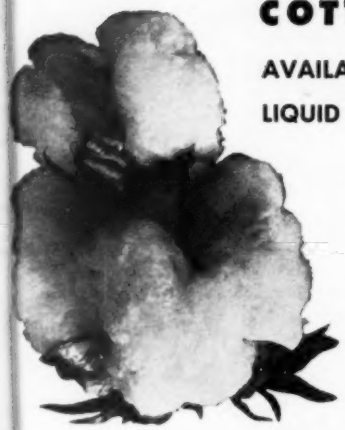

COTTON POISONS

AVAILABLE IN DUSTS AND LIQUID FORMULATIONS

- 44 Aldrin
- 44 Dieldrin
- 44 Toxaphene
- 44 Benzene Hexachloride
- 44 Chlordane

Formulated in any combinations to suit the recommendations of yourself, your customers and your county agent.

CATTLE SPRAYS

- 44 Gold Star Livestock and Barn Concentrate
- 44 Stock and Barn Insect Killer
- 44 Dairy Spray
- 44 Grub Dust
- 44 Ben-Hex 10
- 44 Sheep Dust

BRUSH KILLERS

- 44 Brush Murder (2,4-D and 2,4,5-T)
- 44 Hi-Strength Brush Murder
- 44 2,4,5-T Concentrate

TOXAPHENE

- 44 Emulsifiable Toxaphene Concentrate
- 44 Super Toxaphene Concentrate
- 44 Toxaphene Oil Concentrate
- 44 Cotton Dust 20-40
- 44 10% Toxaphene Dust
- 44 20% Toxaphene Dust
- 44 Wettable Toxaphene Powder

WHEAT CHEMICALS

- 44 2,4-D Weed Killers
- Toxaphene Emulsifiable Concentrates and Dusts
- 44 Chlordane Emulsifiable Concentrates and Dusts
- 44 Parathion Emulsifiable Concentrates and Dusts
- 44 Tepptone Emulsifiable Concentrates and Dusts

CORN INSECTICIDES

- 44 25% DDT Emulsion Concentrate
- 44 DDT Wettable Powder
- 44 Parathion Emulsifiable Concentrate
- 44 Tepptone Emulsifiable Concentrate and Dusts

When writing advertisers please mention *Better Farming Methods*

you can recommend now!

HOUSEHOLD SPRAYS

- 44 Kilzit (Containing Chlordane)

  Available in pints, quarts, gallons, 5-gal. pails, 30 and 55 gal. drums. A 2% Chlordane in refined oil base.

CHLORDANE PRODUCTS

- 44 Emulsifiable Chlordane Concentrate
- 44 Super Chlordane Concentrate
- 44 Chlordane Oil Concentrate
- 44 5% Chlordane Dust
- 44 Wettable Dust Concentrate

DDT PRODUCTS

- 44 25% DDT Emulsion Concentrate
- 44 DDT Wettable Powder
- 44 DDT Dust Concentrate
- 44 DDT Cotton Dust 3-5-40
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- 44 Potato Dust 5-90
- 44 Potato Dust 10-80

COLORADO 44 BRAND

CHEMICAL CORPORATION OF COLORADO

GARDEN INSECTICIDES

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Senior Spring Boars

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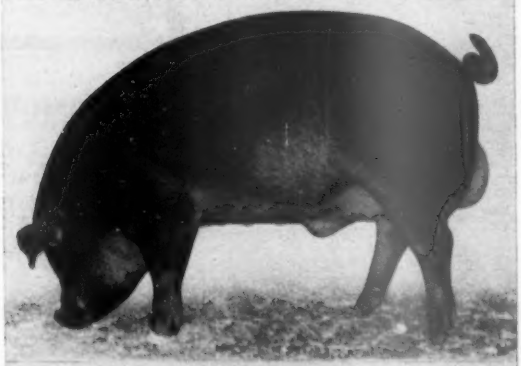

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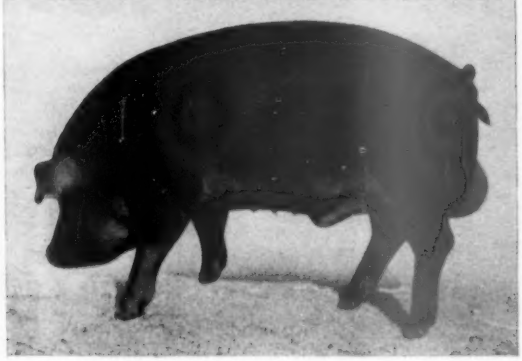


See page 87 for correct placings

Report from Missouri

R. A. Langenbacher, St. Charles county, Missouri agent has a double leader program. But what can you expect of a young fellow with a quarter century of service? Pretty near had to beat him up to get the information. Said he had two reasons for not giving it—neither of them any good.

R. A. Langenbacher

Bob takes justified pride in having 250 farm and home improvement programs in the county. Each one a written agreement signed and on file in the office.

The county soil district helps to get the work done. Recently 150 men and women attended a fall get-together on the farm of Herman and Harry Schiermeier. These folks are leaders of 20 years standing in their community of Libertyville. This is thought to be the first community in Missouri to hold a community balanced farm and home day. The farm and home improvement programs on nine neighboring farms include farm management, livestock improvement and better homes.

The second part of the program is an agricultural office building where all agencies can be together. This is the fulfillment of a desire of long standing. The building houses the extension service with private offices for all the agents; soil testing laboratory; Farm Credit Administrations; and AAA farm program. In the past these agencies have been relegated to attics, basements, public buildings and court houses.

"Farmers who come to headquarters now have an opportunity of taking care of their business," says Langenbacher. "We think they are entitled to this kind of service," he adds.

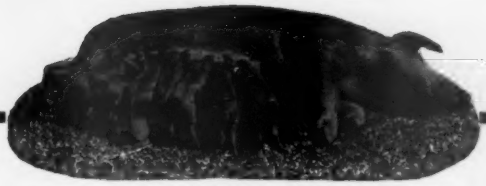
Langenbacher also mentions the Farm Bureau Service Company with a building 40x100 feet and with ample loading docks on a six-acre tract. The business may reach the $300,000 mark at the end of the year, he adds. The best part of it is that his ambition has been more fully realized than he had hoped.

★

Fertilizer Slides Available

A library of 80 colored slides on fertilizer distributing machinery is available to ag leaders. These will serve as a useful aid in educational programs. They show the more effective methods of fertilizer application in current farm practice.

Ag leaders may obtain a catalog of the available slides from the National Fertilizer association, 616 Continental Bldg., Washington 5, D.C.



Bigger Litters—Faster Gains

Add Up to Greater Profits with DUROC

More and more farmers each year are proving to themselves that Duroc hogs actually do "Grow Faster On Less Feed." During the past 11 years, 9,768 Duroc litters in the Official Sow-testing Program have averaged 8.27 PIGS RAISED—almost 2 pigs more than the National average and a 20% saving in feed costs. Big, fast gaining litters are the rule not the exception with Durocs—877 Official Duroc Ton Litters produced in the National Duroc Ton Litter Contest is added proof of the Duroc sow's ability to farrow and raise large, profitable litters. During the past seven years, Duroc market barrows have also dominated the major shows winning 332 All-breed championships compared to 156 for the nearest competing breed. These are only a few of the many reasons why more pure-bred Durocs were recorded in 1950 than the total of the two closest breeds.

Write today for a list of Duroc bred gilt sales to be held in March, and April fall boar and gilt sales. Also inquire about our FREE BUYING SERVICE.

1951 National Duroc Ton Litter Contest—$3,000 in Cash Prizes
Ag Teachers & 4-H Club Leaders: Urge your boys with Duroc projects to enter this popular contest—open to both juniors and adults. $5 cash for every Official Ton Litter and up to $250 in other prizes. Write today for full details and entry cards.

FREE SERVICES: Picture Judging Contest Reprints — Booklet listing free services of the association with large color pictures of ideal type Duroc boar and sow—Information on education sound, color movie film "Pig Projects Make Profits"—New strip film "Selecting Swine." Write today to

UNITED DUROC RECORD ASS'N

Room 61, Duroc Bldg. **Peoria 3, Illinois**

But the chances are you are neglecting the health of your soil. Healthy soil produces healthy, vitamin-rich crops. Minerals are just as essential to healthy soil as they are to the human body. We are constantly taking nature's minerals from the soil, but, are these minerals being replaced? ES-MIN-EL contains the essential mineral elements of Copper, Manganese, Boron, Zinc, Iron and Magnesium. These minerals are essential to good healthy, productive soil. Let ES-MIN-EL enrich your soil and increase production of vitamin-rich crops.

If your soil was not properly mineralized before planting you can now get ES-MIN-EL for dusting or spraying. You can now feed your growing plants these essential mineral elements through the leaves and stems by applying the new form of ES-MIN-EL, for spraying and dusting only. ES-MIN-EL spray or dust is a neutral form of Copper, Manganese and Zinc.

DEMAND
that your local fertilizer dealer furnish you a completely mineralized fertilizer containing the essential mineral elements!

ES-MIN-EL
Essential Mineral Elements
SOIL APPLICATION

Free Booklet
Send card or letter to Tennessee Corp., Grant Building., Atlanta, Georgia or Lockland, Ohio.

TENNESSEE TC CORPORATION
Atlanta, Georgia — Tennessee Corporation — Lockland, Ohio

News from

Thermopane Made In Three Sizes

Establishment of three additional standard sizes of Thermopane insulating glass especially for farm building installations have been announced by Libbey-Owens-Ford Glass Company.

The three sizes will fit farm utility building sash manufactured by the Clay Equipment Corporation, Cedar Falls, Ia.

The new standard sizes will be made with double strength sheet glass with a quarter-inch air space sealed between the two panes of each unit. Thermopane for farm buildings is being made in sheet glass.

A number of other standard sizes of Thermopane in double strength sheet glass suitable for installation in livestock and poultry shelters and other farm buildings are available. The sizes just approved make Thermopane available for metal sash in the farm buildings.

★

Feed Salt Free Choice

Farmers can save up to 50 percent of their feed cost by giving farm animals free access to salt, according to the International Salt Company. Experiments made recently at the Kansas agricultural experiment station demonstrated that the amount of feed required to produce 100 pounds of gain on steer calves was almost twice as high for steers not allowed access to salt as it was for steers given salt free choice.

The experiments, which have just been completed, involved lots of steer calves which were wintered on silage and 1 pound of soybean pellets per head daily. One group, in addition, received free access to salt, while another received no salt.

The group which had free access to salt gained 1.26 pounds per head daily, while the group that had no salt gained only .65 of a pound per head daily. Each animal was fed all the silage it would eat. Those which had free access to salt consumed 28.2 pounds of silage per head daily, while the steers which had no salt ate only 26.15 pounds per head daily.

★

New Foot-and-Mouth Infection Found in Central Mexico

The finding of a new center of foot-and-mouth disease in Mexico was revealed by Secretary of Agriculture, Charles F. Brannan. This is the first evidence of active infection of the disease in that country since December, 1949. The infection was reported about 100 miles south of the northern quarantine line.

The affacted cattle had previously received foot-and-mouth disease vaccina-

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the Field

tions, but the last mass vaccinations were completed in that area about April, 1950. At the present time, no further vaccinations are planned.

"Only time will tell the extent of the outbreak," Secretary Brannan commented, "but we have every hope that the infection will be contained at the point of outbreak. This experience shows why we must be vigilant, not only in Mexico, but in this country as well."

★

Newly Developed Miticide Gives Residual Control

The newest development in miticides is the highly effective Ortho-Mite containing Aramite. This new insecticide has given superior control from coast to coast of the Citrus Red Mite, Clover Mite, Pacific Mite, European Red Mite, and Two Spotted Mite on citrus, apples, grapes, peaches, pears, and nursery plants.

In field tests on citrus plots each application gave outstanding results for long periods of time. Other extensive tests show that unusually effective control can be achieved by spraying or dusting orchard, nursery or garden crops every 2 or 3 months.

It is available in three convenient forms: Wettable powder, emulsive liquid, and dusts. The product was developed by the California Spray-Chemical Corp.

★

Tough Paper Towels Used To Clean Dairy Cows

Paper towels, especially designed for cleaning cow udders, are now on the market. And they're proving useful, says M. J. Regan, extension dairyman, University of Missouri.

These paper towels are used to bathe the udder with hot water, containing a chlorine disinfectant, just before milking.

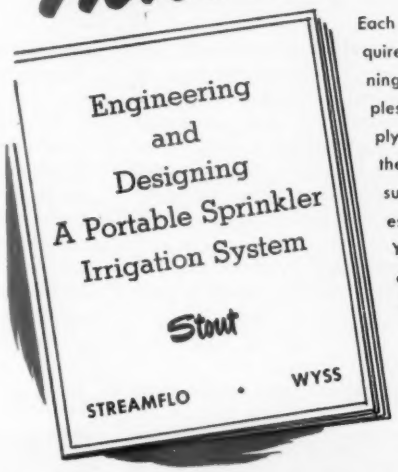
Paper towels do away with cleaning and sterilizing cloth towels. These paper towels for dairy use are tough—even when wet.

"Build-A-Tool" Plans

A series of "Build-A-Tool" plans, describing how to build with an arc welder and other shop tools many useful farm devices, is now available.

The plans are complete, accurately drawn, showing major dimensions, and have been checked by agricultural engineering departments for accuracy and practicability. They have all been farm built.

These plans are free and can be obtained from the Lincoln Electric Company, Cleveland, Ohio.



Each portable sprinkler project requires individual study and planning—yet basic irrigation principles apply. Know the water supply, the area, the soil, the terrain, the climate, the crop, the power supply, and you can apply the established irrigation principles. You can determine the amount and kind of equipment required—you can design an efficient, economical portable sprinkler irrigation system to reap more profit from farm land!

These basic portable sprinkler irrigation principles are fully explained in the STOUT DATA BOOK, available without cost to you.

THE COMPLETE TECHNICAL HANDBOOK

- Methods and data on the planning and installing of sprinkler irrigation systems.
- How to arrive at the number and size of sprinklers.
- How to find the most practical pipe sizes to use.

This is the first in a series of messages appearing each month in the interest of successful portable sprinkler irrigation.

SEND FOR FREE DATA BOOK

Please send me your FREE data book,
"Engineering and Designing a Portable Sprinkler Irrigation System"

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OCCUPATION_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

Stout IRRIGATION, INC.
WYSS IRRIGATION, INC.
KENTON STATION PORTLAND 17, OREGON

Proven Way of Preventing

Here is a thoroughly practical way of preventing weevils from destroying wheat. Proven on thousands of bushels stored on farms and in elevators, Pyrenone WHEAT Protectant is rapidly becoming recognized as a major weapon in the continual war against insects.

Prevention, not cure, is the way Pyrenone works. Keeping insects out of stored wheat rather than waiting for them to arrive, is the sensible way Pyrenone operates.

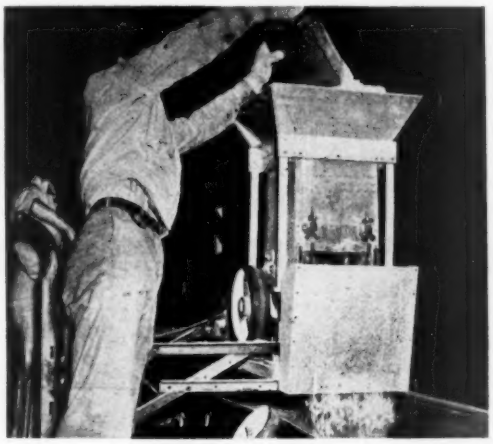
Wheat that has been treated with Pyrenone WHEAT Protectant can be held in season-long storage. Shrinkage, and market dockage caused by insects, and insect fragments in the flour, are held to a minimum, all at the low cost of approximately 2¢ a bushel.

You may want to stage a demonstration during this coming harvest season to illustrate how wheat can be protected—how loss from insects can be prevented. If so, be certain a farm supply store near you carries a stock of Pyrenone WHEAT Protectant.

More details about Pyrenone Protectants are given in a booklet entitled "Preventing Insect Infestations in Stored Grain." It's FREE. Write for your copy now.

*Reg. U.S. Pat. Office

Simple automatic feeder applying Pyrenone WHEAT Protectant in the headhouse of a mill elevator.



Time to apply Pyrenone WHEAT Protectant—just as soon as the wheat goes into storage.

U.S. INDUSTRIAL

60 East 42nd Street

When writing advertisers please mention *Better Farming Methods*

Weevil Damage to Stored Grain

In test after test on stored corn, Pyrenone **GRAIN** Protectant has proven to be a profit builder. By preventing weevils from gaining headway in stored corn, growers can now feed more of their corn crop and the corn they feed is of better quality.

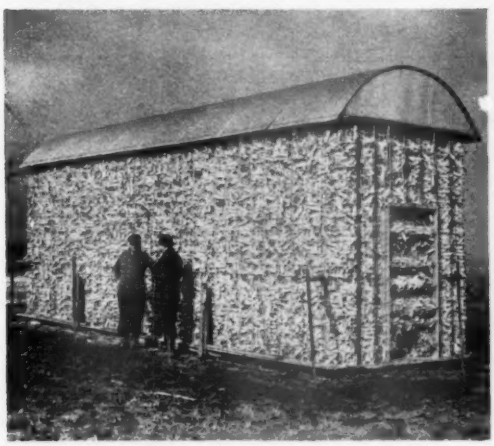
On shelled or shucked ear corn, Pyrenone **GRAIN** Protectant affords almost complete control for an entire season. Year-old corn, fed in the fall or winter, retains its full feed values. On unshucked corn, weevil damage can be confined to those ears that became infested before they went into storage. Growers still profit by being able to get full value from most of their crop. In either case, low-cost Pyrenone GRAIN Protectant can be easily applied to corn as it is stored.

Equally effective protection against weevils can be given by Pyrenone **GRAIN** Protectant to stored rice, oats, rye, barley, grain sorghum and many other grains.

You may want to stage a demonstration during this coming harvest season to illustrate how grain can be protected—how loss from insects can be prevented. If so, be certain a farm supply store near you carries a stock of Pyrenone **GRAIN** Protectant.

Write today for the free, descriptive booklet "Proven Methods for Preventing Insect Infestation of Grains in Storage" and the technical booklet for "Stored Southern Corn."

Apply Pyrenone GRAIN Protectant between layers of corn as it goes into storage.



A gun-type duster may be used to apply Pyrenone GRAIN Protectant as the corn is stored.

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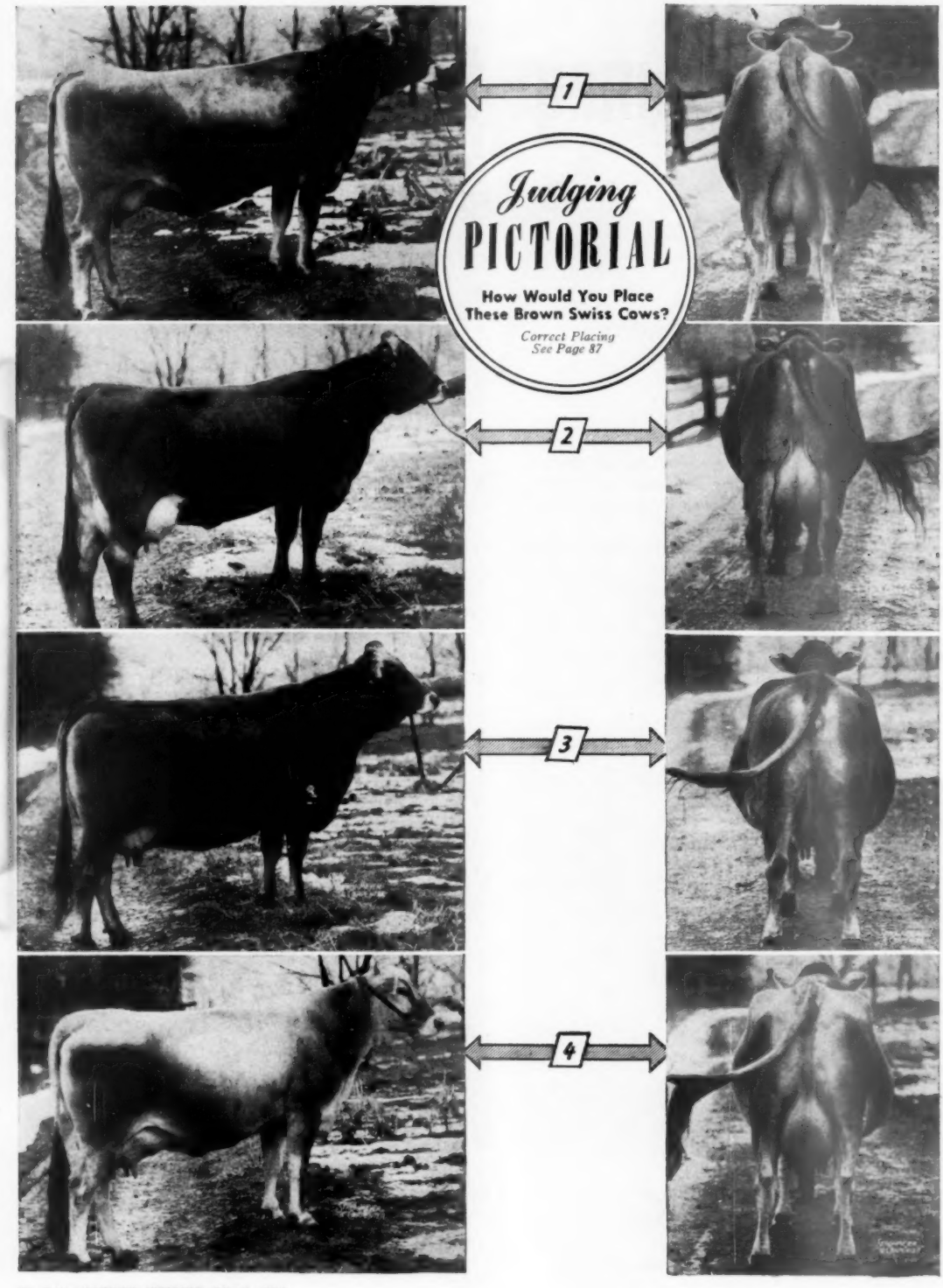

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Correct Placing See Page 87

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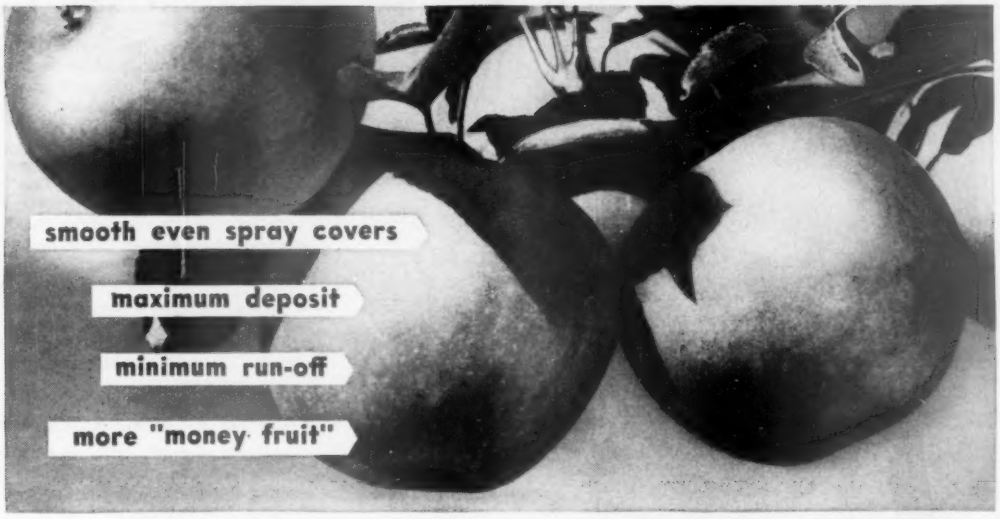

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Missouri FFA Chapter Initiates Forestry Program

The Carl Junction, Missouri, FFA Chapter has made arrangements to set up a local farm forestry management project. Assisting them has been the Kelso Milling Company, Joplin. They offered to put 80 acres of timberland at the disposal of the vocational agricultural department of Carl Junction, providing they set up the land on a forestry management plan.

Aid in surveying the land and outlining the steps to take in order to develop a management area plan was given by L. E. McCormick, extension forester, University of Missouri.

The FFA boys have several main purposes in mind in taking over the land as a forestry management area. One is to develop the land. Another reason is to make information concerning the findings and experiences of the project available to others in the area.

And, of course, the FFA boys expect to realize an income as a result of their work and labor in the area, and thereby make it possible to finance their various activities throughout the year.

★

Treat Seed Cotton At Planting

Replanting cottonseed is an expensive job. It can sometimes be avoided by treating the seed before planting, reports Texas A & M college.

The scarcity of good planting seed in many areas and the present emergency that faces cotton producers makes the problem of getting a good stand on the first planting mighty important in 1951. Cottonseed treatment costs only a few cents per bushel. Treating kills disease germs on the seed, protects the seed and seedlings from diseases which may be in the soil, and gives a better stand.

Producers who have large quantities of seed to treat might find it economical to have the job done by a commercial operator.

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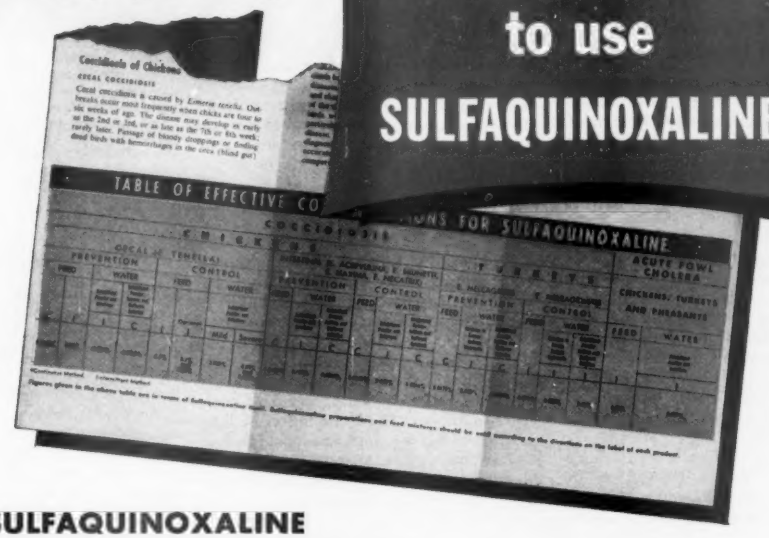

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LEARN THE FACTS—Sulfaquinoxaline-fed flocks show better feed efficiency and better market quality; Sulfaquinoxaline is safe for meat birds and replacement pullets; it is effective the year 'round under a wide variety of climatic conditions.

ALL IN THIS FREE FOLDER, together with Table of Effective Concentrations, showing 22 ways to use Sulfaquinoxaline.

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In *86 successive broiler flocks* (equivalent to about 30 years' experience in commercial broiler production) Sulfaquinoxaline has achieved consistent performance. Throughout this concentrated study, no severe outbreaks of cecal or intestinal coccidiosis have occurred. There was no evidence that the coccidia became resistant to Sulfaquinoxaline.

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FUTURE FARMERS OF AMERICA *Activities*

Walter Cummins, left, Freedom, Okla., national president of the Future Farmers of America, greets Raymond C. Firestone, vice-president of the Firestone Tire and Rubber Company. The latter was elected recently to serve as 1951 chairman of the Sponsoring committee for the Future Farmers of America Foundation, Inc.

Donors To FFA Foundation Hold Annual Meeting

Forty-five representatives of donors to the Future Farmers of America Foundation, Inc. met with the FFA Foundation Board of Trustees and national officers on Thursday, January 25.

The number of donors to the Foundation has steadily grown since its organization. At the annual meeting, it was reported that 104 companies and individuals are now contributing.

A. W. Tenney, executive secretary, FFA, pointed out that the rapid growth of donors to the Foundation was paralleled by a like expansion in the ranks of the Future Farmers of America. This would indicate that the Foundation is accomplishing part of its purpose by stimulating additional interest in the FFA organization.

The budget for 1951 calls for an allotment of $94,250 to the FFA from the Foundation. The New Farmers of America (NFA) has been allotted $9,196.38, making a total allotted to the two organizations of $103,446.38.

This total represents the largest amount that the Foundation has set aside for FFA and NFA awards.

Funds to these two organizations are distributed on a percentage of membership. The FFA membership totals 319,-261 compared to NFA membership of 31,148. The NFA members are Negro boys enrolled in agriculture throughout the southern section of the United States.

In the absence of John Kraft, chairman of the sponsoring committee and president of Kraft Foods Company, Walter Lloyd, Kraft Foods Company, gave a report for him. He noted the growth in the Foundation, and spoke of the tremendous effort which J. H. Kraft had put in as chairman of the sponsoring committee. He urged that all representatives take an active interest in the Foundation and especially cultivate the interests of top executives within each company.

Several significant reasons why top officials of business in industry should take an active interest in the Foundation were given by William B. Schnathorst, International Harvester Company. He noted that the real purposes of the FFA Foundation were based on human values. The result accomplished is the promotion of the economic and social welfare of all boys in the FFA organization. He stated that his company hoped to continue to support the Foundation as long as these ideals are kept foremost in mind and no one company, individual, or political group gained dominance or control of the FFA organization.

Two important reports were given by Dr. W. T. Spanton, chief, agricultural education service and A. W. Tenney, executive secretary, FFA. Spanton outlined the important points which were gained by acquiring the new federal charter for the FFA last year. He emphasized the fact that under the new charter, the FFA remains a strictly private corporation and can in no way be classified as a government corporation. It now will have all the advantages of a private corporation but will operate under congressional authorization.

An outline of the FFA Foundation activity accomplishments was given by A. W. Tenney. He illustrated his report with slides of various activities.

The donor representatives voted to extend appropriate thanks to John Kraft, past chairman of the sponsoring committee, for his effort and time given to this position. They also elected Raymond Firestone, vice-president, Firestone Tire and Rubber Company, as chairman of the sponsoring committee for 1951.

A plan for the selection of a sponsoring committee chairman in the future was suggested by Dr. W. T. Spanton. Favorable action was taken on his suggestion that in the future a committee consisting of W. T. Spanton, chairman, FFA Foundation Board of Trustees; A. W. Tenney; the present year's chairman of the sponsoring committee; and the immediate two past chairmen of the sponsoring committee be given the authority to canvass the field. They would then recommend at the annual meeting some member of the advisory committee to serve as the next year's chairman.

The successful meeting was closed by a banquet given by the Foundation for American Agriculture.

Here is a group of donor representatives, the National officers of the FFA, members of the staff of the Office of Education, Washington, D. C., and several state supervisors of agricultural education who attended the advisory committee meeting in Washington. The donors are representatives to the Future Farmers of America Foundation, Inc.

★

Do FFA Boys Eventually Farm?

An interesting summary of occupations of former FFA boys was completed by Colby high school, Colby, Wis.

Under the direction of Harry Bender, principal at Colby for many years, and Marvin Erdmann, instructor in agriculture, a study was made of the occupations of all the agricultural students since the department was organized.

There have been 231 boys who took two or more years of vocational agriculture. Of those 231,—41 percent are now on farms; 11 percent are in allied work; and 48 percent are not in agricultural occupations.

Of the 231 boys, 105 or not quite half, had completed four years of vocational agriculture. Of these, 56 percent are on farms; 15 percent are in allied work; and 29 percent are not in agriculture.

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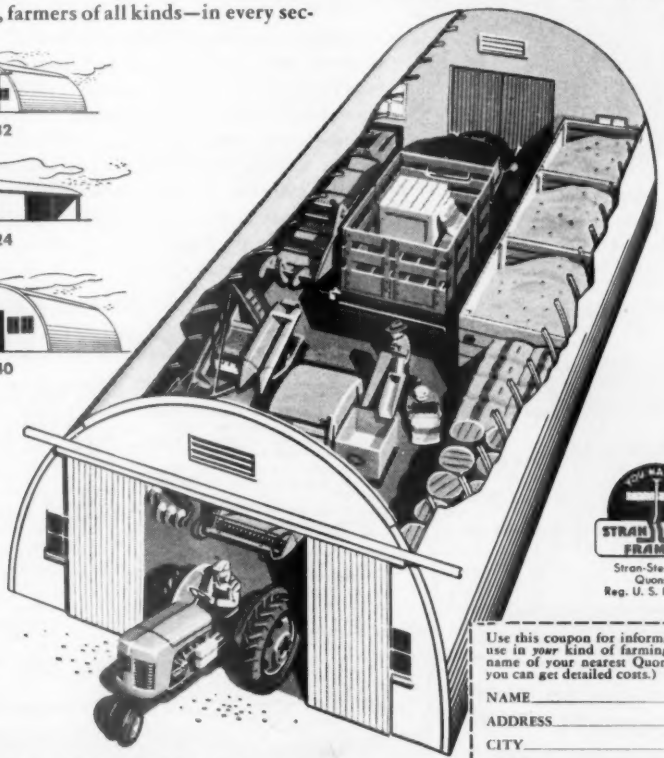

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What's New In . . .

Swine Husbandry

By C. M. VESTAL
Purdue University

● MUCH OF THE SWINE nutrition research during the past year was with the so-called APF supplements in rations of growing and fattening pigs. Some rather consistent results were obtained but as a whole the findings were confusing to swine growers and others.

This no doubt was due mainly to the fact that the many different commercial products containing vitamin B_{12} were referred to as APF, an abbreviation for "Animal Protein Factor." Some of these products contained one antibiotic or another, and some more than one besides vitamin B_{12}—quite different products but most all were referred to as APF or APF supplements. Variation in the B_{12} activity and the antibiotic content of single products, as well as among different ones may also have added to the apparent confusion.

APF As Name Eliminated

Recent definitions adopted by the Association of American Feed Control Officials should help to clarify the situation through the elimination of the terms Animal Protein factor and APF in registered feeds. The definitions are as follows:

"Vitamin B_{12} supplement is a feeding material used for its vitamin B_{12} activity. It shall contain a minimum Vitamin B_{12} activity of 1.5 milligrams per pound. The term shall not be applied to products for which there are accepted names and definitions."

"Antibiotic Feed Supplement is a feeding material used for its antibiotic activity. It shall contain a single antibiotic or combination of antibiotics having growth promoting properties. The name and amount of each antibiotic shall be declared on the label. It shall contain a minimum of 1 gram per pound of antibiotics."

"The label shall bear the legend 'for feeding use only.' Directions for use shall provide for incorporating not more than 50 grams of antibiotic per ton of finished feed."

The following resolution also was adopted.

"Resolved, that if a feeding material is represented to be a combined vitamin B_{12} and antibiotic feed supplement, it shall meet the potency standards and other label and informational requirements established for each component."

Standardization of the different products, with guaranteed B_{12} and antibiotic content, would make possible an earlier determination of the optimum amounts required for rapid and economical growth of pigs.

The use of vitamin B_{12} and the antibiotics requires that more attention be given to borderline deficiencies of rations. Examples might be vitamins and trace minerals, deficiencies which might not be present with slower growth.

Besides the stimulation of gains, the B_{12}-antibiotic supplements have proved useful in many cases of scours and perhaps other intestinal diseases of pigs. The continued use of the antibiotics, however, in rations of breeding animals may prompt a word of caution. First, it should be demonstrated that there are no harmful effects on health and reproduction.

Research at the Ohio and North Dakota experiment stations indicates that one of the trace minerals, cobalt, may play a more important role in swine nutrition than formerly believed. In the past, cobalt was found to be a vital deficiency in rations of cattle and sheep in certain areas of the country.

Diet Affects Carcass Quality

Carcass quality in hogs as affected by diet has received new emphasis at some of the experiment stations. The Tennessee station reports the effects of pasture on hog carcass quality.

Full-fed pigs in dry lot and on pasture were compared with pigs receiving 80 percent, and others 60 percent, of a full feed on pasture. Carcasses from the full-fed lots graded slightly higher than in the limited-fed lots, based on USDA proposed standards. Pigs fed 80 percent of a full feed on pasture produced an acceptable type of carcass. Those receiving 60 percent of a full feed had carcasses which were lacking somewhat in quality. Limited feeding on pasture, however, reduced markedly the amount of feed required to produce the gains, which were much slower than in the full-fed lots.

The Purdue Veterinary Science department reports that swine affected with arthritis, when treated with the hormones ACTH and cortisone behaved very similarly to human beings treated with these drugs. There were cases of prompt relief of symptoms the same as in selected cases in humans, particularly those suffering with the so-called rheumatoid arthritis.

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The New, Scientific Method of Bloodless Castration of Calves and Lambs, and Tail Docking of Lambs. Accomplished by applying a specially compounded rubber ring to the scrotum or tail by means of the ELASTRATOR instrument shown above—thousands now in use. Complete with apron containing pockets for instrument and rings, but without rings. $12.50. 100 rings $1.80, 1000 rings, $12.00.

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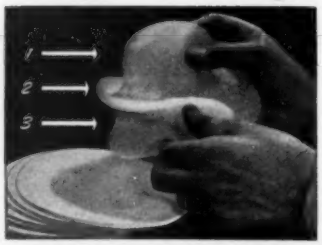

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Only Perfection DUBL-CHEM-FACED Milk Filter Discs provide this "Tripl-Filtring" action . . . fast and thorough . . . at less cost . . . fewer filters required . . . saving of time and money at every milking . . . dependable protection of milk quality is assured *three ways!* Highest quality, low in cost, popular with top grade milk-producers . . . worthy of your endorsement.

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PERFECTION AND ELGRADE FILTERS

What's New In . . . Dairy Husbandry

By E. J. PERRY
Rutgers University

● WOOD MOLASSES has possibilities for livestock feeding. Work done by the New Hampshire experiment station indicates that the wood product is comparable to cane molasses for feeding dairy cows.

Given the same type and quality of hay, the feeding value of mow cured baled hay and field cured hay is practically the same for milk production.

The fertility of bull semen diluted with an egg yolk-citrate buffer is likely to be considerably higher in fertility than when the diluter is the synthetic pabulum.

All of the large artificial breeding associations throughout the country are now using penicillin and streptomycin plus sulfanilamide in the preservation of semen. Both research work and field data in several states have shown a marked rise in conception rate by the routine addition of these materials to the semen of bulls of low fertility. The growth of certain harmful bacteria is thus prevented in such semen.

Calving Affects Production

One of the important steps in economical milk production is the maintaining for the herd that optimum interval between calvings of 12 or 13 months. This is better than the 14 to 17 months which is the case on too many dairy farms. The short interval of 10 or 11 months, although infrequent, is likewise uneconomical.

West Virginia data showed that the unfavorable effect of the short period often carries over into the next lactation. It is necessary for all dairymen to watch for the first heat period after a cow freshens. Then, he can mark down the date so he knows when to expect the heat when he wishes to have her bred.

Comfort stalls proved more satisfactory than tie chain stalls in trials conducted with Holstein cows last year at West Virginia university. The cows in the former produced a little more milk and showed less injuries than the cows kept in the latter. The comfort stalls were 83 x 49 inches in size. The tie chain stalls were 66 x 42 inches. Most of the comfort stall cows stayed a little cleaner than the others.

The records from dairy herd improvement associations in various parts of the country prove that many dairymen are managing their farms and herds so as to keep milk production on a high level through the hot weather months.

The steps followed include: (1) A pasture rotation system adapted to the region; (2) liberal feeding of hay or other supplementary roughage when the pasture is short; (3) turning the herd on one of the best pastures at night in order to induce greater pasture consumption when the herbage is available; and (4) providing shade and fresh water throughout the day.

Hay Supplement Profitable

Many dairymen are finding that feeding supplemental hay even with good pastures is profitable. An example of this is afforded by two New Jersey herds with the same number of cows in about the same stage of lactation.

	Herd I Pasture with Hay Supplement	Herd II Pasture Without Hay Supplement
May Milk Yield	12,440 lbs.	13,296 lbs.
June Milk Yield	14,000 lbs.	11,742 lbs.
	+ 1,560	— 1,554

Such results tend to support the findings of the Massachusetts experiment station. Here some cows were fed only 2.7 pounds of hay and 3.1 pounds of concentrates daily on good pastures. The yield was almost as much as obtained from herd mates which were given 5.7 pounds of concentrates. The feeding was considerably more economical on the hay and concentrate combinations than on the other.

Wood Chips for Bedding

Dairymen in various parts of the country where straw is scarce, are trying fine wood chips for bedding. Most of the reports are favorable.

The liquid absorbing capacity of this material is considered to be fairly satisfactory, especially if it is dry. It probably rates somewhere between sawdust and shavings pound for pound.

A chipping unit can be mounted on the front of a tractor and driven from the power take-off by belt. This powerful machine will chip limb or pole wood up to five inches in diameter. The chips are a by-product of the farm woodlot improvement program. The dairyman with the average sized farm can hardly afford to own a chipper unless custom work for neighbors could be obtained to help to pay for it.

The Fleishhauer ring test for detecting brucellosis infected milk is being tried out by some state Bureaus of Animal In-

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dustry to reduce markedly the cost of area testing.

A herd is tested once instead of twice in the year by taking a sample of milk out of each can. The milk samples mixed with the antigen are held at room temperature and read one to six hours later. This "spot" test is sensitive enough so that a reaction to it could mean that only one suspicious cow might be in the herd.

If the presence of brucellosis is indicated then the whole herd is blood tested to discover which cows are affected.

★

Prevention Best Cure for Bloat

Keep cattle and sheep off pasture on rainy days, or when grasses are wet. Turn livestock on pasture after dew is gone in the morning. Keep a rack with good quality hay, and plenty of good water, before sheep and cattle while on pasture.

A good practice is turning stock on pasture for a short period, removing and checking for bloat. If doubt exists, keep cattle and sheep off pasture. There are two things the farmer can do easily in treating bloat.

Keep the animal from lying down—walk it around or stand it with forefeet uphill. The other measure is: Tie a wooden bit in the mouth of the affected animal and walk it around to promote belching.

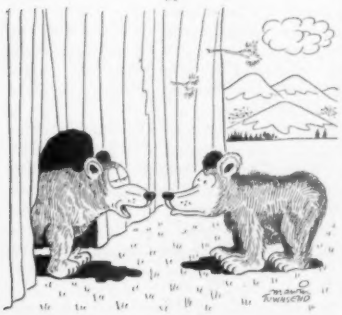
★

Renovation Boosts Pasture Yields

Renovation of old permanent dairy pastures at the Agricultural Research Center, Beltsville, Md., in 1945, resulted in an average yearly increase of 35 percent in feed nutrients during the next five years.

The renovated pastures not only provided more grazing than the unrenovated pastures, but they furnished more grazing earlier in the spring and later in the fall. Furthermore, from July 15 on, when permanent pastures are often short, the renovated pastures outyielded the unrenovated pastures by an average of 45 percent each year for the five years.

★



"What a night. I tossed and turned all winter!"

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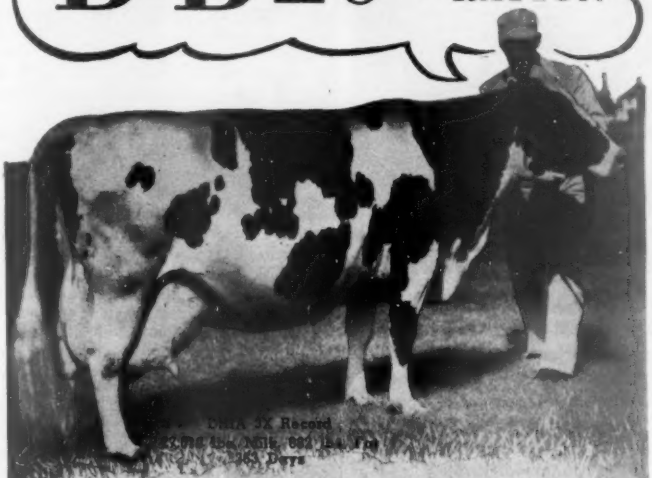

Elm Road Montvic Jewel, a foundation cow of Canadian breeding in Harley Bennett's Ben-Roo Farm herd at Canton, N. Y., recently completed a DHIA 3X record in 363 days with 882 lbs. fat from 27,010 lbs. milk. Commented Mr. Bennett, "She consumed 24 lbs. daily while in the barn. Our grass wasn't good at all during August . . . I don't see how she kept on giving milk. She really made her record on Bull Brand 20% Dairy Ration."

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BETTER FARMING METHODS
Mount Morris, Illinois

What's New In . . .

Beef Husbandry

By O. B. ROSS
Oklahoma A & M College

● THE INTERNATIONAL situation has made it imperative that all beef cattle producers modify their systems of production in such a way as to increase meat production. This increased meat production will probably have to be accomplished with a minimum amount of grain or concentrates. Feeds which can be processed into human food will or could be ear-marked only for that purpose and consequently be unavailable for livestock feeds.

If complete mobilization should come we would be faced with the challenge of producing more beef with a minimum amount of such grains than at any previous time in our history.

This challenge will be met by the beef cattle producers. Several systems of production can be employed to produce a maximum amount of beef with little or no grain. In all probability cattle will have to be grown to about two years of age on grass or roughage and have sufficient size and frame so that a very short feed will make a satisfactory carcass.

Pasture Has Improved

Great strides have been made in the pasture programs throughout the country during the past several years. It is now possible to produce 300 to 600 pounds of gain with beef cattle per acre of pasture. Such a system of production will probably have to be employed extensively.

Such cattle marketed at approximately two to two and one-half years of age with enough finish to meet most consumer demands will not have consumed more than about 1,500 pounds of concentrated feed. Of this, only about one-half would be grain that may be rationed for livestock feed. This would mean that a 1,000 pound steer which would yield a carcass weighing 560 pounds will have been produced from birth with less than 1,000 pounds of grain.

Most of this carcass will have been produced by roughage. No other animal can produce as much meat or animal products with so little grain.

Extend Feed Supplies

In additon to perhaps modifying our system of production to get the maximum use of pasture and all kinds of roughage, we must think in terms of extending feed supplies.

The use of home grown products will particularly be in the picture in our all out effort to produce meat. Greater use of cow-peas, mungbeans, legume hays, and any other high protein feeds will of necessity have to be grown in large amounts to help supplement or replace the high protein feeds coming from the soybean, cotton seed, flax seed, peanut, and others. In addition, we will probably become more conscious of utilizing other sources of nitrogen as protein substitutes.

Urea Can be Used

Among those, urea is probably the most useful under practical conditions. Approximately 25 percent of the protein supplement of a wintering ration can be replaced by urea. In the case of fattening cattle approximately 50 percent of the high protein supplemental feed can be replaced by urea.

Extensive experiments at the Oklahoma station as well as other stations have demonstrated that urea can replace part of the protein supplement in such rations and that the performance of the cattle will be satisfactory.

Urea was used extensively during the last war as a source of nitrogen and an extender of our available supplies of protein. Urea will, likewise, be used very extensively in our present emergency to extend and make our present supply of protein go further.

Are Antibiotics Useful?

New developments in the beef cattle business will help considerably in increasing our meat production program. Some of the new research developments have given considerable promise while others are questionable.

Considerable emphasis has been placed upon the "animal protein factor" in the production of pork and poultry and poultry by-products. The question, naturally, arises as to the value of such materials for cattle.

A limited amount of research conducted with young calves suggest that APF supplements containing antibiotics will increase growth somewhat before the rumen has started to function. The use of APF supplements or antibiotics with cattle that are old enough to utilize large amounts of roughage would appear to be questionable.

Recent experiments at the Oklahoma station have demonstrated that the antibiotic, aureomycin, when fed at a fairly

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high level was very unsatisfactory when fed to steers approximately one year of age. The steers immediately lost appetite, went off feed, scoured, and in general appeared unthrifty. This in all probability was due to some effect within the digestive system of the animal and perhaps more specifically related to the function of the rumen.

The effect of feeding low levels of aureomycin was not investigated. Until additional experimental data is available, it would appear that the use of supplements containing antibiotics should be restricted to swine and poultry feeds.

It is my opinion that during the next several years, the emphasis in our beef cattle program should be placed upon production of meat with maximum utilization of pasture and pasture crops.

★

Sorghums Make Good Feed

Animal husbandmen at the New Mexico Agricultural experiment station have proved that kaffir, a grain sorghum, lacks only 6.6 percent of being as good as corn as a feed for beef cattle.

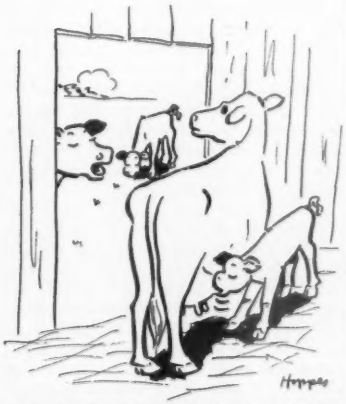
Tests by Kansas, Nebraska, and Texas experiment stations have shown that cattle fed ground milo, another grain sorghum, gained as rapidly as other cattle fed ground corn. They required only a trifle more feed per 100 pounds of gain.

The Florida experiment station has reported that ground shallu heads were fully equal to ground ear corn for fattening yearling and two-year-old beef cattle.

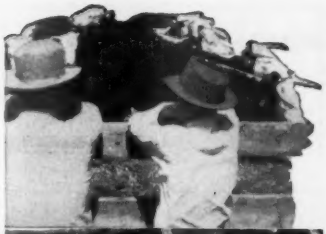
A lamb feeding test by the Texas experiment station showed that 2052 pounds of good quality threshed hegari were equal in feeding value to one ton of shelled corn.

Poultry feeding experiments have also proved that there is no great difference in the feeding value of corn and grain sorghums.

★



"Personally I believe children should learn to eat out at an early age."



HEAVY ON THE SCALES. 35 lbs. more per Hereford steer is shown by a comparison of all "top" shipments selling at Chicago for the first 118 market days of 1950. Top price plus more weight equals added return.

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What's New In . . .

Crop Husbandry

By H. D. HUGHES
Iowa State College

● THE NEED FOR EFFICIENT production in the years immediately ahead concerns all of us. High acre yield combined with low labor requirements per unit of production is our goal.

Today, improved methods and varieties not only are readily accepted by most farmers but are in great demand. Hybrid corn broke the ice. Its performance was so superior to anything previously in existence that it was almost immediately accepted—from no hybrid to almost 100 percent use in 15 years. It was a product of scientific agricultural research.

From hybrid corn it was but a short step to the ready acceptance of new and superior varieties of oats, wheat, soybeans, and other crops.

The use of new materials in fertilizers, new procedures in their use, and the use of selective chemicals for the control of insects and diseases went hand in hand with the new varieties and new cultural procedures.

1950 Production Near Record

The total production from 52 of our principal crops the past season was the third largest on record. This production record is made more meaningful by the fact that the two years of greater production were the years immediately preceding 1948 and 1949. The past three years were all at the very top in acre production and in total production.

The 1950 record production was on the smallest acreage since 1942. It was in a season that might be said to be "threatening" rather than favorable. The acres planted but not harvested were, in contrast, the largest since 1939.

The production records of the last three years gives us the very best proof of the extent to which better production methods are paying off. Superior varieties from breeding programs, more effective insect, disease and weed control are examples of improved practices.

More Legumes Needed

Taking the long time look, there is an increased recognition of the need for a more general planting of grasses and legumes. We need to use more productive varieties and kinds, just as in the case of the cereal crops.

Even with good production practices, and the best varieties, the cereal crops cannot be kept productive unless our soils are preserved. Here is where the legumes and grasses come into the picture.

In the most effective production programs on a majority of farms animal production is important. That means hay and pasture lands as well as the rotation cereal crops. It is generally acclaimed that the cheapest animal production gains are on pasture—provided the pasture is anything like what it should be. Unfortunately, the returns from much of our acres in pasture have been notoriously low.

Two Legumes Prove Value

The introduction and increasing availability of two legumes especially valuable as pasture is worthy of special note. They are the two perennial legumes, Ladino clover and birdsfoot trefoil.

Ladino clover is of special value in rotation pasture seedings. In any part of the country where summer temperatures are not too high or soil moisture insufficient Ladino clover has been breaking records as a pasture legume. Ladino is unusually productive, recovers quickly after being grazed down, very palatable, and has a high nutritive value. It is usually seeded in mixtures with grasses and perhaps another legume.

In birdsfoot trefoil we appear to have the permanent pasture legume that we have long wished for. It is a perennial that is deep rooted, heat and drouth resistant, with a wide soil tolerance, and the ability to maintain itself indefinitely in competition with sod forming grasses. It will stand up under the worst grazing conditions.

Birdsfoot trefoil has now been in use long enough to have thoroughly established its place and value. It has high acre production, is palatable, and approaches alfalfa in nutritive value. No cases of bloat are known for this legume. As a pasture legume, it has established its reputation from Iowa east to Vermont and south to the Ohio river, also in the Pacific coast states.

At the Iowa station, old blue grass pastures renovated with birdsfoot trefoil produced an average of 197 pounds of beef gain per acre. This average was over a two year period on four different pastures. Comparable, adjacent bluegrass pastures averaged only 97 pounds of beef gain per acre. This gives the renovated pastures where birdsfoot trefoil was used a gain of 100 pounds per acre.

The cost of renovation, including lime, phosphate, seeding, and all labor and

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machine costs, averaged $5, spread over a 10 year period. This also includes phosphate top dressing, which is recommended.

Trefoil Maintains Itself

When once established, trefoil can be expected to remain. The longest record with trefoil in pasture renovation is at the Indiana station. There, with trefoil established in bluegrass in 1941, it has led all other pasture seedings in production of steer gains. The pounds of beef gains per acre in '48, '49, and '50 were 334, 337, and 354 respectively, averaging the highest of any like period.

Rotation pastures have generally been considered more productive than permanent pastures. It would appear that the availability and use of trefoil in well managed permanent pastures may change this general picture.

As a result of its long time studies with the birdsfoot trefoil the Indiana station reports, "A permanent pasture with a good mixture of bluegrass and birdsfoot trefoil will produce as much beef as mixtures commonly used in rotation pastures.

★

Cut Timber for Most Income

A four-year study, carried on by Forest Service, USDA, indicates that the owner of a southern woodland can increase his gross income from timber as much as three times if he does his own cutting, logging and hauling instead of selling his trees on the stump.

The statement is based on findings of the Southeastern Forest Experiment Station at Asheville, N. C.

Using equipment available to the average farmer, the Forest Service's experiment station grossed $13,770 from a 303-acre woodland during the period from 1946 to 1949. If the timber had been sold as stumpage, gross returns would have been only $3,910.

The per acre gross return on the woodland averaged $11.36 a year.

★

Hay spoils if stacked improperly. Ag leaders may be able to help farmers and farm youth save hay stacked in the open. Round bales can be stacked similar to the way cigarettes are packaged. Loose hay over the top, heavy building paper or roofing material, another layer of loose hay, and this weighted down with wire or other heavy objects will shed water and snows.

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Don't wait till crops start to "burn up". Hale Irrigation Pumping Units protect farmers against crop loss through drought . . . a loss that frequently amounts IN ONE SEASON to more than the cost of an irrigation system that would prevent it.

By acting now, a farmer can have rain when he wants it, for the sure protection of his crops . . . for increased profits through larger quantity and better quality.

Efficient HALE Centrifugal Pumping Units are available for irrigating areas from 1 to 100 acres and up.

Table below lists Hale Units designed for use with overhead, underground or portable irrigation systems.

Above—This 4 lb. bunch of celery came from celery field shown above. Irrigated by an 800 GPM Hale Type CFIR.

For Push-Button Rain!

- **Type CIR 1250 GPM at 100 lbs.**
- **Type CFIR 800 GPM at 100 lbs.**
- **Type W 300 GPM at 75 lbs.**
- **Type PE, 150 GPM at 50 lbs. Portable in frame; on skids; or on two wheels.**
- **Type MP, Self-priming portable, 15 GPM at 40 lbs.; 60 GPM free flow.**
- **Type ENF, 90 GPM at 21 lbs.; Electrically driven.**

NOTE: Types CIR, DFIR and W come skid or trailer-mounted.

Write for detailed information . . . state size of area and water source available.

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1950 International Carlot Champions
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—and more carcass championships in past 25 years than all other breeds, combined

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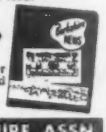

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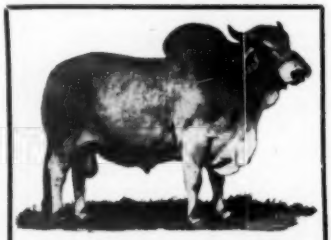

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NORRIS CATTLE COMPANY
R. G. "Bob" Herrmann, Gen. Mgr.
Box 1051 • Ocala, Florida

What's New In . . .

Poultry Husbandry

By MORLEY A. JULL
University of Maryland

● NEW FACTS dealing with the production and marketing of poultry and poultry products are developed so rapidly that it is difficult for leaders in the industry and producers to keep up with the times. Limitations of space prevent mentioning more than a few of the outstanding contributions during the past year.

New Kind of Breeding Program

Many farmers and commercial poultrymen have become familiar with the breeding program that led to the development of "hybrid" pullets for high egg production. These "hybrid" pullets are the progeny secured from crossing inbred lines of two or more different breeds or varieties.

There has recently been developed a new method of selecting breeding stock designed to develop high egg production in the progeny when the two strains are crossed. Suppose that these two strains are called A and B. This new breeding program is best adapted to poultry breeders who normally make up several matings every year.

Several matings are made up, each consisting of a strain A male and strain B females. Several reciprocal matings are also made up each consisting of a strain B male and strain A females. The A strain males and females that produced superior progeny in the above matings are mated together the next year to reproduce strain A. Likewise, the B strain males and females that produced superior progeny when mated to A strain females and males, respectively, are mated together the next year to reproduce strain B.

Progeny testing strain A males and females mated together and strain B males and females enables the breeder to select the best males and females in each strain. These will be used to make up matings of outstanding strain A males with strain B females and strain B males with strain A females.

This breeding program constitutes a continuous alternation of crosses between strains and matings within strains, the best males and females being selected for future breeding purposes on the basis of progeny testing. Only the chicks secured from the cross-strain matings are sold.

This newly developed breeding program is unique in that it avoids close inbreeding but gives reasonable assurance that progeny of superior laying ability is produced. Farmers and commercial egg producers are certain to hear more about the reciprocal recurrent method of selecting breeding stock to develop high-laying strains.

Several progressive poultry breeders have developed different strains of white or light plumage colored birds. These are noted for rapid growth and early feathering, with a view toward increasing efficiency of feed utilization and reducing the pinfeather problem in dressing.

Antibiotics for Broilers

The latest development in poultry nutrition is the addition of certain substances called "antibiotics" to diets for broilers. Experimental work has been conducted with the following four antibiotics: Aureomycin, penicillin, streptomycin, and terramycin. Apparently one of the chief functions of these substances is to inhibit the growth of harmful bacteria in the digestive tract of growing chickens.

One of the interesting things about these antibiotics is that they are used in very small amounts. Another interesting thing is that when antibiotics are added to what are otherwise regarded as well balanced diets, extra growth is stimulated.

About the only practical way of adding antibiotics to diets is for feed manufacturing companies to do the job. The law requires that any commercial feed containing an antibiotic must be so labeled. This new finding is of tremendous importance to the rapidly expanding commercial broiler industry because efficiency of feed utilization is increased.

Used Litter Promotes Growth

It has been demonstrated that the vitamin B_{12} content of built-up litter that was used by breeding stock for one year was higher than B_{12} content of litter that was changed weekly. It was also higher than new litter that was not changed for an 8-week period. Chicks on the built-up used litter grew considerably faster than chicks on the other two kinds of litter.

In another experiment it was shown that efficient growth in chickens is possible on an all-vegetable corn-soybean meal ration supplemented with vitamin B_{12}, riboflavin, vitamins A and D, and minerals.

It has been shown that soiled eggs

collected in wire baskets may be washed in a 1 percent detergent solution kept at a temperature of 140° F. However, they must be rinsed with tap water under pressure at 140° F. and subsequently air-dried by using a fan. Soiled eggs thus washed retained good interior quality for a 4-week storage period at 60° F.

Subscald Poultry

Recent experiments have shown that immersing chickens in water at subscalding temperature rather than at hardscalding or semiscalding temperature improves the appearance of the skin of dressed poultry.

The hardscalding method of plucking involves immersing the birds in water ranging in temperature between 180 to 190° F. Very often the skin looks parched when the dressed birds become dry. In the semiscalding method of plucking, the birds are immersed in water from about 122 to 128° F. At these temperatures, many pinfeathers are sometimes present, especially in the case of broilers.

Recent work has shown that subscalding at 138 to 140° F. for 30 seconds removes most of the pinfeathers and the color of the skin is lighter than when birds are plucked by the hardscald and semiscald methods. Subscalding should only be used for poultry that is to be sold as cut-up chicken and packed in ice and for ready-to-cook poultry that is to be quick frozen.

New Disease Control Methods

Among the most recent developments in controlling diseases in poultry is the use of enheptin in the control of blackhead in turkeys and employing the intranasal vaccination method for controlling Newcastle disease. For their proper use, poultry pathologist or veterinarians should be consulted.

★

"This one also disposes of crumbs."

Banish False Security

In Your Battle Against

NEWCASTLE DISEASE

THERE'S no margin for error when you vaccinate your costly chicks against dreaded Newcastle Disease. The vaccine you administer to your birds must provide positive and complete protection. That is why we say, "Depend on VINELAND Live Virus (Wing-Web) NEWCASTLE VACCINE when immunizing growing birds of all ages.

It will be to little avail to use vaccines that cost a fraction of a penny less than Vineland Newcastle Vaccine if, as a result of this false economy, you ultimately suffer big losses—just at a time when your meat birds are ready for marketing. Invariably, these slightly lower priced vaccines are of low antigenicity (power to immunize) and outbreaks occur anywhere from three to nine weeks after vaccination.

Remember! To date, no other commercial strain has the immunizing powers equal to VINELAND Live Virus (Wing-Web) NEWCASTLE VACCINE. Broiler and roaster growers can safely use Vineland Vaccine on parentally immune chicks one-day-of-age and up. But, if the poultryman intends holding over these birds for layers, re-vaccination before housing is essential.

DON'T HAMPER THE EFFICIENCY OF VINELAND LIVE VIRUS NEWCASTLE VACCINE!

To obtain positive results from VINELAND Live Virus (Wing-Web) NEWCASTLE VACCINE, make sure that your birds have not previously been vaccinated with killed or intranasal types vaccine.

PUT YOUR FAITH IN VINELAND POULTRY LABORATORIES—the pioneers and acknowledged leaders in the field of poultry biologics. For 37 years, among commercial poultrymen, leading hatcherymen and in scores of Agricultural Colleges and Experiment Stations, Vineland VACCINES have been recognized as the first line of defense against poultry diseases.

Write for your copy of our complete digest of VINELAND'S CAMPAIGN AGAINST NEWCASTLE DISEASE.

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Founded in 1914 — **VINELAND, N. J.**

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RAIN BIRD Sprinklers

There's a Rain Bird Sprinkler for every agricultural requirement, with 19 different models, ranging in size from 1½ G.P.M. at 3 pounds pressure, to 610 G.P.M. at 120 pounds pressure.

As in years past, Rain Bird continues with research and testing to hold the lead with improved sprinklers that give more coverage per dollar of cost.

Our research department is at your service. Handbook and bulletins on request to county agents, teachers, and agricultural leaders.

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DANUSER ALL PURPOSE BLADE

Tested and Approved by Most Tractor Manufacturers

What's New In . . .

Sheep Husbandry

By E. P. ORCUTT
Montana State College

How Much Protein Does A Range Ewe Require?

● IS HER PROTEIN requirement 10, 20, 30, or 40 percent in the supplemental feed she eats in the winter time?

The sheep research staff of the Montana Agricultural Experiment Station decided almost three years ago that they would find out. Then range sheepmen of this state, and perhaps other nearby states, could have a definite answer when they asked: "What percent protein should I feed for greatest economy without hurting my ewes or the lamb and wool crop?"

J. L. Van Horn, and W. H. Burkitt, along with assistance from other members of the Animal Industry and Range Management staff, went to work on the question. At that time, grain pellets, 10 or 12 percent crude protein, cost $60-$70 per ton. High-protein pellets 35 to 45 percent crude protein, cost $80-$100 per ton. Quite a difference! A saving of $20 or $30 per ton on the winter pellets would be fine, *if* it didn't hurt the wool or lamb crop.

Van Horn insisted that large numbers of ewes should be used and strictly range conditions should be maintained. Fortunately, Montana state college had 1,000 range ewes and a 4-year lease on a typical foot-hill winter range near Livingston. So the experiment was set up.

Four Feeds Used

Burkitt, the animal nutritionist, formulated four kinds of pellets, all equalized in every way except for the percentage of protein. Van Horn sorted up 4 lots of ewes, 250 head in each, also equalized for age, weight, type and breeding, and wool grades.

The first year of the trial began December 29, 1948 and ended March 27, 1949. For the second winter, a year ago, the trial began December 29, 1949 and ended April 4, 1950. Fifty head of ewes were added a year ago and this group received no pellets whatsoever. The different protein levels are shown opposite.

Remember that all the other nutrients were balanced out and equalized.

A portable, five-way sorting chute had to be designed and built; portable pens and panels provided, and convenient feed troughs constructed so they could be easily moved. This was to be a range experiment and the camp and all equipment had to be moved several times during the winter.

Every morning at daylight the entire band was sorted—5 ways last winter and 4 ways 2 years ago—each ewe into her proper pen from "0" to "IV". Then group I to IV were fed their assigned pellets and driven out of the feed pen so the next group could be fed. The fed ewes received an average of ½ of a pound per day of the specified pellets.

A year ago all of the ewes received hay for only three days during a bad storm. The first winter, two years ago, was uncommonly severe and all the sheep required some hay and a little barley, in equal amounts per head, in addition to the pellets. It was even necessary to use a bulldozer to move the camp and the sheep. The snow had to be bulldozed out of the pens more than once to prevent the sheep from walking on the drifts over the top of a four-foot fence.

It all added up to a lot of money and work but the men never faltered. The feed industry and the Montana Wool Growers association helped out financially the first year. Since then Swift and Company has also made a research grant to assist with financing the experiment. Such is the interest in the business of pinning down the real facts.

Savings May Be Large

The increased returns and the savings to both the grower and the feed manufacturer may run into tens or hundreds of thousands of dollars throughout the coming years. Final conclusions could possibly be negative—it often happens in research—but now, at the halfway point,

Percentage of Crude Protein for Each Lot

Lot No.	0	I	II	III	IV
Crude Protein, 1948-49		10.4%	18.2%	27.1%	37.0%
Crude Protein, 1949-50	No Pellets	11.8%	19.8%	27.4%	33.2%

Table I—Body Weights of Ewes on Nutrition Experiment 1949-50

Lot Number	0	I	II	III	IV
Crude protein in pellets %	No. Pellets	11.8	19.8	27.4	32.2
Dec. 29, 1949	132.0 lbs.	132.1 lbs.	132.9 lbs.	132.2 lbs.	132.8 lbs.
Mar. 13, 1950	129.4 "	135.7 "	138.7 "	139.8 "	140.8 "
Apr. 4, 1950	127.3 "	135.5 "	138.5 "	140.1 "	141.6 "
Difference Dec. 29-Apr. 4	—4.7	+3.4	+5.6	+7.9	+8.8

Table II—Lambing Data—1950 (Lambing started April 21) Preliminary Report

Lot Number	0	I	II	III	IV
Crude protein in pellets, %	No. Pellets	11.8	19.8	27.4	33.2
No. sheep weighed on 12/29/49	52	250	250	250	250
No. sheep lost	0	4	3	3	3
Death loss, %	0	1.6	1.2	1.2	1.2
No. ewes lambing	40	220	211	222	219
No. live lambs recorded	51	288	280	286	259
No. live single weights recorded	29	152	142	158	144
No. live sets twin weights recorded	11	68	69	64	75

Table III—Percent of Ewes Lambing—1950

Lot Number	0	I	II	II	IV
Percent of ewes with live lambs recorded of ewes at lambing	80	91	86	91	90
Percent live lambs recorded of ewes at lambing	102	119	115	117	121
Percent of 2-year-olds on experiment that did not lamb	20	12	11	21	17

Table IV—Average Birth Weights—1950

Average birth weight of single lambs (lbs.)	9.0	9.8	9.7	9.7	10.0
Average birth weight of twin lambs (lbs.)	7.6	7.9	8.5	8.5	8.4
Weighted ave. of all lambs at birth (lbs.)	8.3	8.8	9.1	9.1	9.2
Pounds of lamb (weighted ave. X lambs recorded)	423.3	2534.4	2548.0	2602.6	2714.0
Ave. lbs. of live lambs (per ewe on 12/29/49)	8.47	10.26	10.32	10.54	10.99

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Here is a view of the sorting chute which is used in this project. Ewes are sorted each day so they can be fed their special rations.

it appears that there would be several positive findings.

Four tables are included in this report. They all apply only to the work of one year ago, 1949-50, and are furnished as partial illustrations of the records and data which are being kept and collected. Absolutely no conclusions will be reached or published until the four winters of work are completed and summarized. Not even the reader should draw conclusions from these tables.

Winters are different, grass and grazing is different from year to year, herding can be very different, so we must wait for final results until about two years from now. Animal research is slow but Van Horn and Burkitt and their associates are careful and patient.

★

Seed Treatment Is Profitable

Treatment of grain seed with effective fungicides to insure better stands takes on additional importance this year, says the U. S. Department of Agriculture. Fungicidal treatment of grain seed is mostly for the smuts and other controllable diseases of wheat, oats, and barley and for the seed rots and seedling blights of corn and sorghum.

Fortunately, much seed, such as hybrid corn, is treated at the source. Also there are large-scale treating plants where farmers may take their seed for treatment. Farmers who hire someone to treat their seed should make sure that the proper chemicals are used and that they are applied at the recommended rates per bushel.

Treatment of corn, sorghum, or rice seed, whether done at the source or by the farmer, often does away with the need for replanting. If seed of these three crops is properly coated with a suitable fungicide it will go through cold wet periods without being weakened or destroyed by soil fungi.

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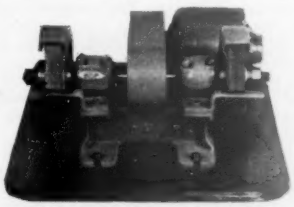

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What's New In . . .

Soil Husbandry

By W. A. ALBRECHT
University of Missouri

● THAT WE SHOULD think enough about the soil even to ask the question, "What's New In Soil Husbandry?" is in itself almost novel.

Not so long ago we did not include the soil when speaking broadly of husbandry. Only in recent years has it become a practice of folks in agriculture to consider production in terms of the fertility of the soil.

Moisture Ample—Fertility Low

Crop production in general has moved more and more out of the whims of the weather. We are coming to realize that for a big crop both food and drink are required in ample supply.

Our fields are no longer just places where the crops are canopied under sunlit skies and sprinkled by rain. They now supply the fertility for crop creation. This is measured by detailed chemical soil tests and supplemented through test-guided soil treatments to give well-balanced plant nutrition, regardless of the variable weather.

As a consequence, rainfall is now being used more efficiently. What was once considered lack of moisture, like the yellowing of the lower leaves on corn stalks, is now known to be due to shortage in the soil's nutrient supplies, especially nitrogen. It is not due to a shortage of water.

Such newer concepts are bringing us to realize that probably the rainfall has been plenty. We probably have failed in soil husbandry to match it with the necessary plant nutrients.

Last season's high yields of corn, often more than 100 bushels per acre, were not due alone to the ample supply and distribution of the rainfall. They resulted where the grower tested his soil, and invested in calcium, phosphorus, potassium, nitrogen, and other nutrients necessary for the balanced nourishment of the increased number of corn stalks.

It was not a blind faith in the weather, nor in a particular kind or pedigree of seed. Instead, it was an effort to help the soil to really feed the plants. Farmers are beginning to realize that moisture probably has been plentiful. They have just begun now to build up the soil to the level of fertility necessary for its efficient use.

Recent studies by soil scientists and plant physiologists have stated that the deep rooting "habits" of any crop are more likely due to the greater depth of fertility in the soil than to any natural property of the crop.

Roots are growing bodies. They move through the soil in accordance with the fertility needed to feed them, rather than the pressure from the plant top.

Roots that are merely going through the soil are spindly and scarcely visible. They are literally in search of something that will feed them. Once they meet up with a center of more concentrated nourishment, like a clump of buried manure or a deposit of fertilizer, they suddenly become enlarged masses of big roots in that particular soil area.

For example, sweet clover has a spreading root system with many horizontal branches. In a shallow surface soil over compact, fertility-deficient, clay subsoil (Putnam silt loam, for example) it is shallow rooted. On another soil, like Marshall silt loam with good fertility distributed down through it, sweet clover is deep rooted.

It is the soil rather than the crop that controls the deep-rooting behaviors.

Soil Microbes Important

Now that antibiotics have demonstrated their benefits in human physiology, we are considering whether the physiology of all other life forms between microbes and man might not likewise get benefits.

These diverse chemical creations of the soil microbes taken along with their feeds by animals have been shown to make those rations more nourishing. Feeding some soil directly demonstrates its healthful effects on pigs.

For plants, too, we know of growth stimulating values, resembling those of chemical hormones, from rotted organic matter under careful tests.

Such thinking about microbes is decidedly new in soil husbandry. We are finally considering them as benefactors, when too long they were believed to be enemies. "Dirt" need no longer be held dangerous because of its "germs." Microscopic life of the soil is taking its deserved place in the biotic pyramid.

Located between the soil and the plants, microbes couple up with the soil as the starting point to give us the assembly line delivering the major chemical complexes of food values to man and beast at the top of the pyramid.

Newer theory and practice in soil husbandry emphasize the soil as chemical basis for our nourishment. Soil is not

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the source of only ash elements prominent in our cremation, but is the means by which microbes, plants, and animals chemically create or synthesize all the complex compounds required to feed us.

This is a newer line of thought in soil husbandry that may well be nursed by more research of science and by wider appreciation of the public as a whole.

★

Weed Threatens Rangeland

A fast spreading, poisonous weed, halogeton now imperils livestock on the rangelands of six Western states, New Mexico A & M college warns.

Halogeton, a close relative of Russian thistle, has spread from Elko county, Nevada, where it was first noted about 15 years ago, to Idaho, Wyoming, Utah, Montana, and California. How this plant, native of the Caspian Sea region, made its entry to the United States is not now known.

The weed brings sudden death to sheep and cattle feeding on it in late fall and winter when other forage is not available. Oxalic acid, the poisonous substance in halogeton, combines with calcium of the blood serum. From a half pound to a pound and a half of the weed, dry weight,—depending on the size of the animal—will kill a sheep. Smaller amounts cause loss of weight and abortion.

An annual, halogeton grows most abundantly on bare soil. Destruction of other plant cover opens the way for the weed's invasion. In the Western range country it has moved first into the trails, roadside ditches, sheep bed grounds, and similar areas where there has been little other plant competition. From there the invader has swept into burned and overgrazed range lands. It is now established on more than a half million acres and spreading rapidly.

The plant has a high water content and an unusually large root system for its size. The seedlings start growth late in the spring. Both large and small plants begin producing pearly red to purple blooms in July and continue to flower through August.

★

Economic Education Film Guide

A descriptive catalog of motion pictures and slide films covering many phases of the American economic system has been prepared. It furnishes details on 134 films from 63 indicated sources. These films deal with business and economics.

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Soil Fumigation—Where Are We Now?

By W. F. JEFFERS
Plant Pathology Department
University of Maryland

● CONTROL OF UNDESIRABLE soil organisms by field-scale soil fumigation is a relatively new skill of considerable importance in production of many crop plants. Already growers of certain crops are almost as dependent upon their fumigant application equipment as they are upon any other piece of farm machinery.

Some authorities predict that in the near future fumigation will become an integral part of soil preparation for many crops grown in the United States. However, it must be remembered that much more research and testing must be carried out before soil fumigation can be adapted to meet the varying agricultural conditions that exist in this country.

Factors Affecting Fumigation

It is already apparent that the following factors, among others, must be considered in soil fumigation:

1. The nature of the organisms to be controlled governs the choice of the chemical to be used. Some materials are effective in controlling insects, while others are best for fungi, nematodes, or weeds.

2. Methods of application are of utmost importance in determining the effectiveness of the materials used.

3. Soil temperature, moisture content, organic matter content, and method of preparation all may have definite effects on efficiency of the fumigant.

4. Reaction of various crops to soil fumigation varies greatly. Some crops may be more readily injured than others. Quality of crop products may be affected by use of soil fumigants.

5. There will always be the economic aspect of cost of soil fumigation in relation to the added value returned to the grower.

For many years it has been known that certain undesirable organisms occurring in soil could be controlled by chemical treatment. Such materials as formaldehyde, mercuric chloride, copper sulfate, cyanide compounds, carbon bisulfide, etc., were used for this purpose. However, due to high costs and unadaptibility to field-scale use they were rarely used to treat more than small areas, such as seed beds, nursery plots, and greenhouse soil.

In 1934 chloropicrin (tear gas), was found to give control of the root-knot nematode disease of pineapple in Hawaii. However, this material was not adapted to large scale use and the search for better soil fumigants was continued.

Dr. Walter Carter, who was working for the pineapple industry, was the pioneer in this work. Through his efforts it was found, in 1940, that D-D met the requirements of a field-scale soil fumigant. Soon D-D was being widely used in Hawaii for control of the root-knot disease and yield increases of 50% to 100% were not uncommon. Today it is used in many states for various soil fumigation purposes.

Other materials such as ethylene dibromide and methyl bromide soon were adapted to fumigation of soil and are also being widely used at the present time. All of the present fumigants are applied in liquid form but become gaseous when exposed to air.

Common Products Listed

Some of the more common trade products and their uses are classified below.

Soil Fumigants Having Ethylene Dibromide As The Active Ingredient. Included are such trade products as Bromofume, Dowfume-W, Iscobrome-D, and Soilfume. Ethylene dibromide products are mainly effective in control of nematodes and insects.

Application of 20 gallons per acre of a product containing 10% of this active ingredient is standard for control of wireworms and other insects. For some nematodes the dosage is 30 gallons per acre and for others it is 40 gallons.

This chemical gives best results when soil temperatures are above 45 degrees F. Usually a delay in planting of about two weeks is required after treatment. This is necessary since the materials are toxic to living plant tissues.

Soil Fumigants Having Dichloropropene and Dichloropropane As The Active Ingredients. A mixture of by-products of the plastics industry is the basic ingredient of D-D and Dowfume-N. This material is a dark brown, pungent liquid consisting of dichloropropane, dichloropropene, and other chemicals.

When applied at a dosage of from 20 to 40 gallons per acre it is effective in controlling nematodes, wireworms, and other insects. Also under some conditions very good control of weeds, including crabgrass, has been obtained.

These products are most effective at soil temperatures above 50 degrees F. No planting should be made sooner than two or three weeks after treatment.

Soil Fumigants Containing Methyl Bromide As The Active Ingredient. Methyl bromide is a liquid that readily volatilizes into a colorless, odorless, poisonous gas at temperatures over 43 degrees F. It is widely used as a fumigant for control of insects in stored food products.

As a soil fumigant, when used at the rate of about 60 gallons per acre, this material is effective in controlling nematodes, insects, and some fungi. Trade products having methyl bromide as the active ingredient are Dowfume G, Iscobrome, and Dowfume MC-2.

Soil Fumigants Containing Chloropicrin As The Active Ingredient. Chloropicrin is best known to the public for its ability to irritate mucus membranes and to cause tears to flow. From this property it received the common name of tear gas.

Chloropicrin is the closest approach to an all-purpose soil fumigant, for it is toxic to bacteria, fungi, nematodes, weed seeds, insects, and animal life. However it has one serious limitation that has prevented its general use in the field; it is too expensive for large-scale application.

It is used mainly by nurserymen and greenhouse operators who are producing high value crops. Another difficulty in using chloropicrin is the need for a water seal or covering to the treated area to prevent escape of the gas.

Special Equipment Needed

Special equipment is necessary for application of most material used for soil fumigation. Hand operated injectors which deliver a measured amount at the desired depth are used for small scale application and for spot treatment in the field.

Spot treatment may be used for widely spaced crops such as watermelons or other crops in which it is desired to fumigate only the area in which the roots will grow. Other methods of treatment consist of applying a fumigant to the row in which the crop is to be planted with no treatment between the rows. Solid or general application usually consists of treating the entire field area by applying the material about 6 inches deep in rows 10 inches apart.

In these cases the fumigant is usually applied by constant flow applicators which operate on the simple principle of an outlet tube mounted behind a narrow cultivator blade. A number of these blades are mounted on a tractor-drawn framework so that relatively large areas can be covered in a few hours. In order to obtain the proper dosage it is necessary to carefully regulate the rate of flow of the fumigant and to maintain a constant speed.

Cost of such application equipment is relatively high, but many growers have constructed their own machines. A number of companies already are in the

business of custom soil fumigation on an acre basis. It is expected that this business will be of increasing importance in the near future.

Here Are Basic Requirements

There are a number of basic requirements for effective results with most of the soil fumigants. Soil must be well prepared and free of large clods and clumps of organic matter. Soil temperature should be at least 50 degrees F. and there should be a moderate amount of moisture present.

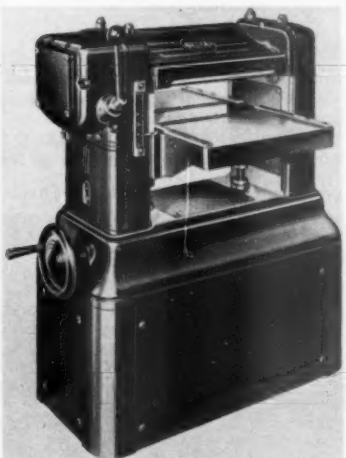
Improved results are being obtained by applying about half of the normal treatment and then plowing under the top inch or two of soil and applying the rest of the normal dosage. This split application is based on evidence that the top inch or two of soil, which contains most of the organisms, does not receive sufficient exposure to the chemical fumes to provide good control. Thus this layer is plowed under where there is not so much danger of the fumes escaping and another application is made.

It is expected that this method will assure more uniform kill of undesirable organisms and will greatly increase the dependability of soil fumigation.

Some of the products discussed are fairly effective in controlling soil-borne fungi but they are not suitable for general recommendation. Much research is under way on this problem.

It is expected that commercial products will soon be available which will make thousands of acres of disease-infested land again suitable for profitable crop production.

★



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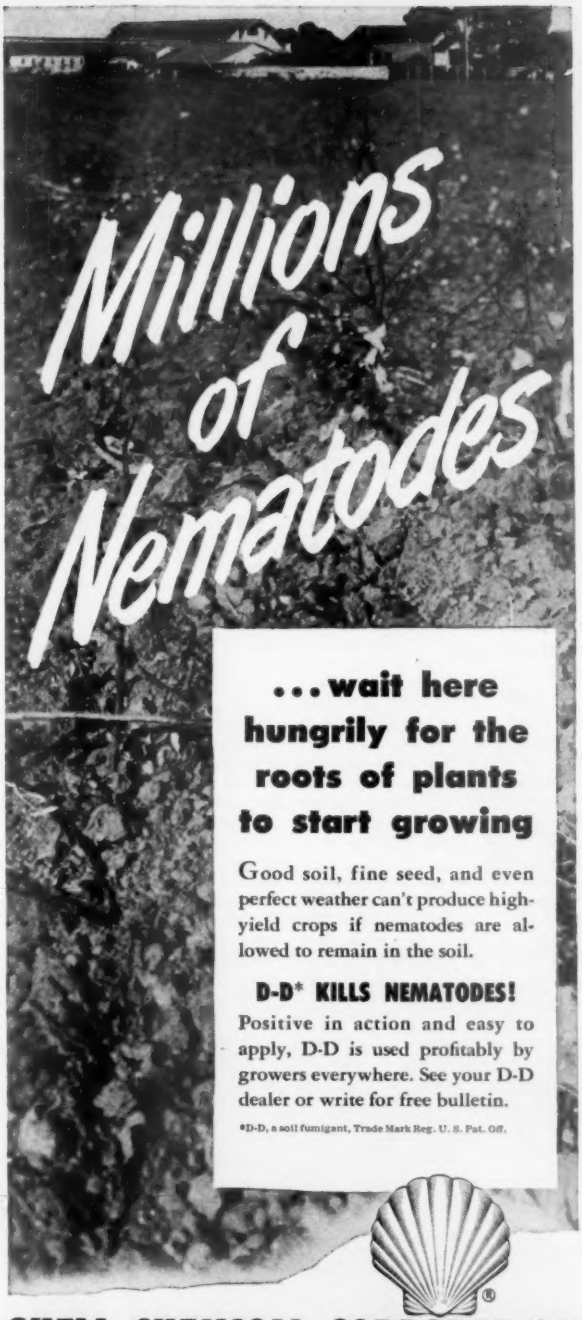

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A common tool used to make a slit is the mattock.

A tiling spade is also very handy to use in planting seedlings.

Caution Your Farmers to . . .

Plant Seedling Trees Carefully

By Austin Lentz
Extension Specialist
Rutgers University

● SOME OF US HAVE had the experience of planting a good many trees. Most of us will try every way we can think of to make the job easier. Of course, that's good. It's one of the ways by which we learn.

There are a number of different ways to plant tree seedlings. The seedlings are usually 4 to 8 inches in height with root systems of about the same size. These little trees don't need a very large hole for their roots; consequently a number of different types of tools can be used for doing the job.

First, Prepare the Site

Time and effort can be saved on some areas by preparing the site before starting to plant. This is especially true in fields with heavy sod or weed cover. In old fields covered with sod, planting will be easier if a very shallow furrow is plowed along the contour of the slope. the sod and trash out of the way. Plant the seedlings in the furrow.

Where furrowing is not practical because of rocks or slopes, and where weed competition seems severe, it is well to scalp the sod with a mattock. Prepare a 6-inch area around the hole in which the tree will be planted.

Areas relatively free of heavy sod and briars usually do not need any special preparation. Many tree planters become concerned about competition from tall weeds the first year or two after planting. Usually they need not fear. Only tall, dense stands of grass tend to smother the little trees.

Methods of Planting Vary

The method of planting you use will depend on several things. The size of the trees, the condition of the soil whether it be clay, sandy, rocky, or wet are determining factors. Steepness of the

Be sure the hole is large enough to allow the roots to spread out.

After the seedling is planted, tramp the earth about the roots firmly.

slope is usually a minor factor when hand planting is used. Ground cover on the other hand is very important. Let's talk about the best methods to use under these varying conditions.

No matter what system you use there are three important things to keep in mind if you expect good survival. They are: (1) Make a ground opening large enough to accommodate the root system; (2) plant the trees at about the same depth as they stood in the nursery, no deeper, and (3) pack the soil tightly around the roots, leaving no air space for the roots to dry out. Do this and with favorable weather, you should get good survival.

On soils that are sandy or of a loamy texture with few stones, a mattock, shovel, planting bar, or tile spade can be used to make a slit. Place the tree roots in the slit and pack tightly.

On stony areas, clay soils, or on areas where heavy grass interferes, the dug hole method is often required. Scalp back the sod, dig a hole, spread out the tree roots and then firmly pack the ground around the roots. The mattock is the most common tool used for this purpose.

The ordinary long handle, round point shovel can be used successfully for digging a hole or for making a slit.

Several Ways to Dig Holes

Various devices have been developed for digging holes. One device is simply a long piece of angle iron strapped to the tractor wheel. Each time the wheel revolves the end if the angle iron opens a hole.

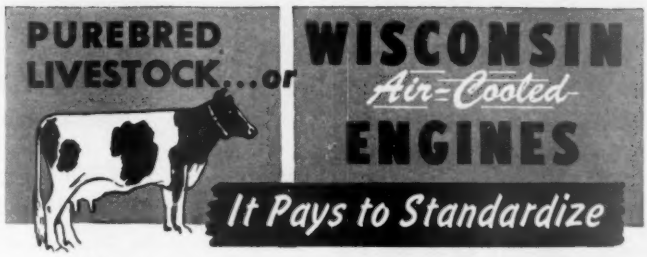
The author has used an ordinary plow to open a deep furrow. As the second furrow was rolled over on the first, the trees were slipped between the two and tramped thoroughly. This method works only on large trees and in most cases should be confined to species that readily survive. Black locust is such a species.

In the southern states, fall, winter, and spring are suitable for planting. In the north, winter is out, but fall is satisfactory providing there is no danger of frost heaving. Where frost heaving occurs, spring is the season to plant.

As important as the planting method is the care of the seedlings during the operation.

Seedlings should be kept from drying out at all times. When they are received from the nursery, the roots should be placed in a trench of fresh dug ground. They should be watered frequently until planted. During planting the trees should be carried in a bucket with about four inches of water in it. Doing this will keep the roots moist until they reach their final resting place.

Tree planting is fun and it's easy, but as I said in the beginning, you will probably try every tool in your tool shed until you find the one that suits you.



As farm mechanization grows, and the farm labor problem becomes progressively more acute under a military economy, it becomes increasingly important for American farmers, and their county agent advisors, to recognize the advantages of "engine standardization".

Whether buying engines as independent power units or as power components on mechanized equipment, there is a practical analogy for the farmer in making his selections in much the same way as buying purebred cattle. In other words, stick to the "blood lines" and the "Power line" that experience and good judgment may dictate as being best for his purpose.

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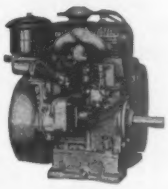
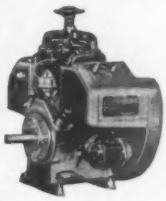

Two Cylinder 7 to 13 hp.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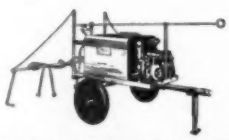

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From the Colleges *and* Experiment Stations

Disease Resistant Tobacco

Latest achievement in tobacco improvement through breeding is the origination of new strains of burley that are almost immune to wildfire, one of the more serious diseases of the crop.

Dr. E. E. Clayton, plant scientist of the U. S. Department of Agriculture, said that breeders will now be able to develop high-quality, wildfire-resistant varieties of all major tobacco types. The first of these is expected to be available within the next two or three years.

The development of wildfire resistance is the second installment in the program to improve the cultivated species. Shortly after the study was begun, mosaic resistance was successfully incorporated in cultivated tobaccos. Resistance in each of these cases is effective against several races of the disease.

The new wildfire resistant burley lines appear to be a little more vigorous in growth than non-resistant lines. More important, they have a lower nicotine content. This represents another notable gain. Nicotine in present-day burley runs higher than smokers like.

★

Corn Borer Moth Traps Not Generally Recommended

Progress in electrically trapping European corn borer moths has been reported by John G. Taylor, agricultural engineer, U. S. Department of Agriculture's Division of Farm Electrification.

Scientists warn that despite good experimental results, electric traps cannot be recommended for farm control of corn borers. Traps developed thus far are only experimentally satisfactory, they state, and much more research is needed before an electric trap can be recommended as a safe and effective borer control measure for farm use.

Research on the right type and number of lights to best attract the moths has proved black light lamps highly successful. The moths seem to be attracted by light just beyond human visibility in the ultraviolet part of the spectrum.

Traps including 60 watts of light made up four 15- or two 30-watt black light lamps mounted horizontally were best. This arrangement reduced moth numbers 70.4 percent in the first 15 rows of corn surrounding the trap as compared with a check of moth population in an unlighted area.

Taylor found that second-generation corn borer moths were not attracted directly into the traps as were first-generation moths. Generally they flew above the corn until they got near the trap, then ducked down into the corn and flew under the trap. However, secondary traps placed below the original traps for a few days late in the season made good moth killers.

★

New Disease-Resistant Clover

Kenland red clover, a new disease-resistant clover, will be available for seeding 150,000 acres in the Corn Belt this year.

According to K. E. Beeson, Purdue University extension agronomist, the new red clover has been grown under certification on 9,000 acres in the West. Seed yields in these western states ranging up to 20 bushels per acre have made possible the rapid multiplication of breeders' seed supplied from the originating Kentucky Agricultural Experiment Station.

The important advantage of this clover over older varieties is its resistance to southern anthracnose. This disease attacks clover rather frequently, causing leaves and stems to wither and turn black with consequent reduction in stand, yield and quality of forage.

This clover is not resistant to the northern anthracnose. However, in demonstrations carried out by county agents to date, Kenland has been equal to any strains with which it has been compared in the northern part of the Corn Belt.

★

Plant Rust Resistant Oats

Planting rust resistant oat varieties is the best insurance farmers can take out against losses to the 1951 oat crop from the new stem rust race 7.

The U. S. Department of Agriculture listed oat varieties Marion, Andrew, Eaton, Rainbow, Ajax, and Mo. 0200, as resistant to this disease.

Race 7 stem rust remained a commercially unimportant plant disease until last summer. Then with its quick sweep across oat fields in the Corn Belt and the Plains States in a single season, it served notice that it is capable of causing widespread damage under conditions of warm and humid weather and prevailing winds favoring its development.

Whether race 7 will cause important damage in 1951 will depend on weather conditions and the amount of oats grown that are susceptible to it.

Early oat seeding, a recommended practice, is doubly important as a means of reducing rust losses. Generally speaking, each day of delay in seeding will

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Don't miss it. Use it every month.

cost the farmer from one-half to one bushel per acre. The loss from late seeding will be much greater in a bad rust year.

★

Cattle Grubs Prove Costly

Cattle grubs cost millions of dollars in loss to livestock raisers every year. To combat them, the Wyoming agricultural extension service recommends three different methods for controlling the insect pests.

Based on the use of Rotenone, which is the only insecticide recommended for control, the three formulas are:

Powder-spraying: 7.5 pounds of 5 percent Rotenone powder and 100 gallons of water; or five pounds of 5 percent Rotenone powder, 10 pounds of wettable sulfur and 100 gallons of water.

Hand-dusting: one pound of 5 percent Rotenone powder and 2 pounds of Cream Tripoli earth or pyrophyllite.

Hand-washing: 12 ounces of 5 percent Rotenone powder, 1 gallon of water, and 1-2 ounces of neutral soap or chips.

The average time that treatments should begin would be 40 days after the first grub bumps appear on the backs of the animals. Treatments should be repeated at 40-day intervals if cattle are infested with grubs. The number of treatments will vary according to local conditions and needs.

★

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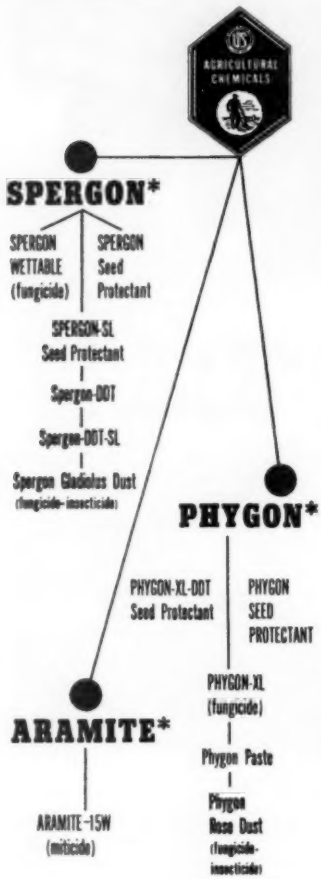

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4-H News for CLUB LEADERS

Rhode Island 4-H Boys Win Boston Judging Contest

The Rhode Island 4-H poultry judging team, coached by Club Agent Roger Leathers, took top honors at the 4th Northeastern 4-H Poultry Judging contest. This event was held in connection with the 103rd Boston Poultry Show, Boston, Mass.

Entered in the contest were 10 teams with four 4-H boys to each team. The Rhode Island teams scored 2,490 points out of a possible 3,000. Second place in the contest went to Connecticut.

In charge of the contest was John Merchant, state 4-H leader, Burlington, Vt.; John Taylor, extension poultryman, New Brunswick, N. J.; and Owen Trask, asst. extension poultryman, Storrs, Conn.

★

National 4-H Center Started

Property for a National 4-H Club center in the Nation's Capital has been acquired by the Board of Trustees of the National 4-H Club Foundation, Inc. The Board has completed arrangements to secure the unused Chevy Chase Junior college for girls.

The property includes an auditorium, dormitory, and service facilities for 200 or more people.

Plans for such a center have been discussed for a number of years by the state 4-H club leaders. Annually since 1927, except for interruption during the war years, each state and territory has sent 4-H club delegates to Washington, D. C., during the month of June. Here they participate in the National 4-H club camp—a citizenship and leadership training program.

It was felt by the foundation that the center would provide ideal facilities for these assemblies and for other youth and extension workers' gatherings.

The center will be under the immediate direction of an executive director, Edward W. Aiton, whose appointment was announced January 8. Policies will be determined by a board of trustees comprising seven representatives from the Land Grant colleges and the U. S. Department of Agriculture, guided by an advisory council composed of all state directors of cooperative extension work.

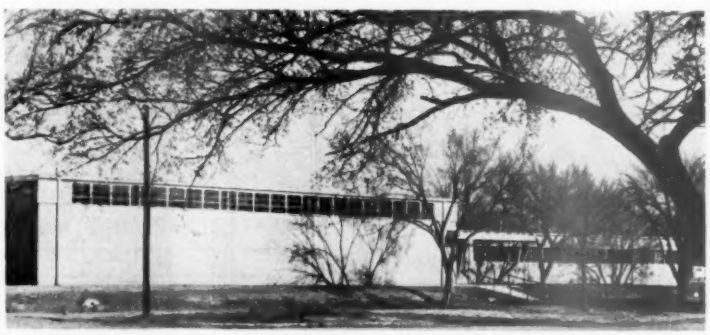
★

South Carolina To Stage 4-H Club Broiler Contest

A state-wide broiler contest for white 4-H club boys and girls will be conducted in 1951, according to P. H. Gooding, leader, Clemson Poultry extension work. It is being sponsored by the South Carolina Poultry Improvement Association.

Club members entering the contest may use either purebred or cross-bred stock. Each contestant must grow out at least 50 sexed cockerels or 100 straight-run chicks. The chicks entered in the contest must be purchased from hatcheries in South Carolina operating under the National Poultry Improvement plan and must have been hatched between March 19 and 24.

Contestants will not be permitted to use artificial stimulants such as hormones, and standard 4-H broiler record forms will be required for submitting reports.



Pictured here is the new 4-H building which was dedicated last year and is located in Eldorado, Butler county, Kansas. The building is located in a park on a plot of land deeded to the county by the city of Eldorado. It has 14,000 feet of floor space, divided into an 80 x 100 arena and a smaller wing 60 x 100. Total cost of the building was over $62,000. Funds were raised by taxation and a community-wide solicitation.

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Oregon 4-H'ers Raise Pheasants

Oregon 4-H club boys and girls raised over 1300 pheasants for the fish and game service in 1950, reports Burton Hutton, state 4-H agent at Oregon state college.

The farm youths were supplied with the eggs which they hatched and cared for until the birds were old enough to be freed at about eight weeks. A member of the game commission then inspected the pheasants and supervised their release. The 4-H'ers received a fee for each bird they raised to cover their expenses and to encourage this activity.

★

Arkansas to Hold Workshops

Arkansas vocational agriculture service has arranged intensive workshops in rural electrification for 300 vocational agriculture teachers next summer. The workshops include two three-week graduate courses by the Department of Agricultural Engineering, University of Arkansas, and eight workshops in strategically located and equipped high schools over the state.

The workshops will be concerned with arrangement of vocational agriculture shops for teaching electricity to boys in young farmer, veterans and adult farmer classes. They will use teaching material prepared by the Athens, Ga., office of Southern Association of Agricultural Engineering and Vocational Agricultural Educators and other agencies.

Cooperating in preparing course outlines and in conducting the workshops will be the state vocational agriculture staff, departments of agricultural engineering and vocational teacher education at the University of Arkansas, and the Arkansas Power and Light Company. In the local workshops, methods of conducting farm shop instruction will be given by the professional agricultural education staff. Technical instruction and demonstrations will be given by agricultural engineers. The group of teachers will receive instruction by methods which can be used with farmer students in their own high school program. Ample materials will be available for effective application of the "learn to do by doing" principle.

Last year workshops were held on adult and young farmer classes with emphasis on grassland farming.—*C. R. Wilkey, State Supervisor, Arkansas.*

★

New Sprayer Catalog

Fast operating weed and insect sprayers are featured in a new catalog released by the Massey-Harris Company, Racine, Wis. Printed in color and available now for distribution, the catalog illustrates and describes two multiple-use units.

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The Idaho county agents report a successful annual extension conference. Left to right, standing, are directors George Funke, Kootenai County; Erling Johannesen, Gem county; Nile Taylor, Madison county; Glenn Bodily, Camas county. Sitting, left to right, George Cook, Idaho county, pres.; and Stirling Schon, sec.-treas.

New officers of New Mexico county agents' associations were elected at the recent extension conference at New Mexico A & M college. Heading the state county agents' association for 1951 will be **John Gaume**, Curry county; **J. R. Chavez**, Santa Fe county, vice-pres.; and **W. F. Zimmerman**, Union county, sec.-treas.

Edward W. Aiton, 4-H Club field agent for the Northeastern states, has accepted the position of executive director of the National 4-H Club Foundation of America, Inc. His new duties began January 1. He is on leave of absence from the extension service.

On February 1, **Willard A. Munson** retired as director of the Massachusetts extension service, University of Massachusetts. His service to the state of Massachusetts began 35 years ago when he became the first county agent in Norfolk county.

Norman R. Clizer, graduate of the University of Missouri and a former county agent and extension poultry specialist in the state, has joined Hales and Hunter Co., Chicago. He has been appointed an associate in the Red Comb poultry department.

A. G. Morrill, Goodyear Tire & Rubber Co., has been named director of the company's Soil Conservation Awards program. The Goodyear-sponsored program, designed to award farmers whose effort at preserving the topsoil of this nation have been outstanding in their respective states, is now in its fourth year. It includes 17 states in the Mid-west.

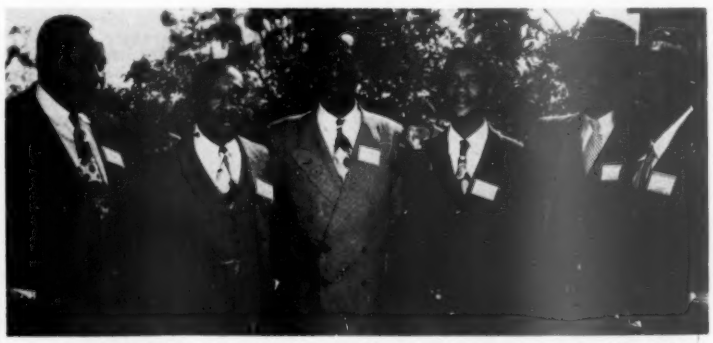
The new district 4-H Club agent in the Savannah Valley district of South Carolina is **J. B. Williams**. He assumed his new duties on January 1, and succeeds **O. Romaine Smith**. In addition to his general supervision of boys 4-H Club work, he will serve as director of Camp Long, Aiken, one of the state 4-H Club camps operated by the Clemson extension service.

The new western district agent for the North Carolina state college extension service is **Ben P. Jenkins**. He succeeds **Robert W. Shoffner**, and was formerly farm agent of Cleveland county. **Howard Clapp**, former assistant director of the State Test farm succeeded Jenkins in Cleveland county.

Two long-time Michigan county agents, **C. E. Gunderson**, Gogebic county, and **W. E. McCarthy**, Bay county, resigned in January.

James W. Dayton, Massachusetts state county agricultural agent leader since 1943, has been appointed as associate dean and director of the State Extension Service. **H. Sidney Vaughan**, director of the Worcester County Extension Service will become Massachusetts state agricultural agent leader.

This announcement completes the reorganization of the agricultural services of the university originally announced last November by President **Ralph A. Van Meter**. All teaching in agriculture and horticulture, all research work, and all extension work are now united into one school of agriculture and horticulture.



Attending the 1950 AVA Convention in Miami, Florida were these negro agricultural leaders. (l-r), S. P. Fugate, state teacher-trainer, Georgia; A. Tabor, teacher-trainer, Georgia; G. W. Conoly, teacher-trainer, Florida; J. W. Warren, Jr., assistant supervisor, North Carolina; S. B. Simmons, supervisor, North Carolina; and vo-ag teacher, George Curry, Smoaks, S. C.

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Coming Events

March 3-11—National 4-H Club week.
March 15—Distillers Feed Conference, Hotel Sinton, Cincinnati, O.
March 19-20—Fifth annual Farm Forum, Radisson hotel, Minneapolis, Minn.
March 20-21—24th annual convention, Michigan Association of Future Farmers of America, Michigan State college campus.
March 20-22—Annual state convention of the Oregon Association of Future Farmers of America, Oregon State college, Corvallis, Ore.
April 5-7—Nebraska State FFA convention, Lincoln, Neb.
April 5-7—Indiana state FFA convention, Union Bldg., Purdue university, Lafayette, Ind.
April 6-7—Massachusetts FFA convention, University of Massachusetts campus, Amherst, Mass.
May 14-16—22nd annual Minnesota FFA convention, St. Paul, Minn.
June 4-7—State 4-H Junior Leaders conference, State Fair Grounds, Indianapolis, Ind.
June 11-29—Wisconsin extension service summer school, Madison, Wis.
June 15—Chicken-of-Tomorrow contest, Fayetteville, Ark.
June 13-20—National 4-H Club camp, Washington, D. C.
June 20-22—State FFA convention, University of Illinois, Urbana, Ill.
July 9-27—Workshop for supervising teachers, Michigan State college, East Lansing, Mich.
July 22-28—National Farm Safety Week
August 16-17—National Soil Conservation field days and plowing matches, Bethany, Mo.
August 28-31—Annual meeting, American Society of Agronomy, State College, Pa.
September 29 - October 6 — National Dairy Cattle Congress, Waterloo, Ia.
October 8-11—National Future Farmers of America convention, Kansas City, Mo.
October 9-10—National Farm Electrification conference, Gibson hotel, Cincinnati, O.
October 29-November 1—NACAA convention, Peabody Hotel, Memphis, Tenn.
November 12-14—Soil Conservation Society of America convention, Peabody Hotel, Memphis, Tenn.
November 25-29—Annual meeting, National Association of County Club agents, Chicago, Ill.
November 25-29—National 4-H Club Congress, Chicago, Ill.
November 26-December 1—American Vocational Association convention, Minneapolis, Minn.
December 17 - 19—Winter meeting, American Society of Agricultural Engineers, Stevens Hotel, Chicago, Ill.

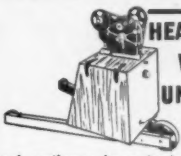
★

Farmer: "I sure miss the old cuspidor since it's gone."
Wife: "You always missed it, that's why it's gone."

★

For Help, Turn to Page 86

FREE folders for your file on these 4 farm **LABOR SAVERS!**



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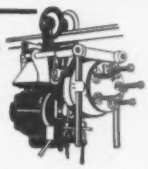

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COMPLETE Multi-Purpose POWER HOIST
$108.00
This price includes trolley, motor, cable and hook. It's complete. Lifts 500 lb. loads as bales, crates, milk cans, bags of feed and will power other equipment on the farm.

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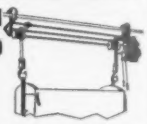

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This Is Paquette Reporting . . .

. . . for the National Association of County Agriculture Agents. County Agent Lucien Paquette is the chairman of the NACAA Information committee and makes arrangements for the material that appears on this page.—Editor

BOYS GROW CORN IN SPITE OF DROUGHT—Learning by doing is the 4-H approach and according to Mitchell County Agent J. A. Mauldin, Camilla, Ga., 4-H Corn Club boys had an experience with Mother Nature in 1950. Mitchell county experienced one of the worst droughts in history, but in spite of this, 117 members grew their acre of corn in the county contest, and averaged 42.9 bushels per acre.

County Agent Mauldin conducts his annual corn program with the cooperative help of the Camilla Chamber of Commerce and the Mitchell county Farm Bureaus. These sponsors put on a banquet at the end of the year's program for all enrolled members, and provide prizes for the top six boys.

Mauldin was proud to report the top yield of 71.9 bushels per acre for 1950 which he says "is considered to be an excellent yield in this county under conditions that existed in mid-summer."

NORTH CAROLINA AGENT'S $3000 TELEPHONE CALL—The telephone rang and George B. Hobson, farm agent for Mecklenburg county, North Carolina, picked it up and answered. No, he had not gone to bed. Then somewhat apologetically, the voice at the other end of the wire declared that "I just wanted to call and thank you for what you have done for us farmers this summer."

"Why, I haven't done anything that I recall."

But the person at the other end was insistent.

"Yes, you have too. You got us to spray our cotton after we had already decided it wasn't necessary. You conducted demonstrations. You wrote letters advising us to poison for the weevil, and a half dozen or more stories appeared in the press making the same plea."

The county agent began to recall some of those hectic weeks in early summer when cotton crops seemed hopelessly doomed to failure.

Compliments continued to pour from the wire.

"We thought that it would be a waste of money to poison this year, but when you visited our farm and took me and the boys out in the field across the road and showed us that we had about 85% of our cotton squares punctured, we for the first time realized our predicament."

The farmer revealed that he will make 20 bales on 30 acres, which would have otherwise produced no more than 5 without dusting. Cost of dusting amounted to $235, with the machine fee costing $90.

The voice concluded, "thanks to you, I am about $3000 to the good."

County Agent Hobson went to sleep that night glowing with the satisfaction of being able to help others.

★

Newly elected officers of the Pennsylvania County Agents' association are, left to right, Paul N. Reber, Towanda, Bradford county, vice-pres.; Eugene G. Hamill, Hollidaysburg, Blair county pres.; Eugene G. Ifft, Franklin, Venango county, sec.-treas.; and Charles K. Hallowell, Philadelphia, member of the board of directors. John D. Gapen, Waynesburg, assistant county agent of Greene county, also was elected a director.

★

SIGHTS SET HIGH FOR 1951 NACAA COMMITTEES—President Ed Bay and all committee chairmen have their sights set high for 1951. By next fall, the roll call of each committee in your National Association will reveal just what progress was accomplished during the year.

Tom Wingo, county agent, Trenton, Tenn., and a member of the information committee, says, "We are looking forward with a good deal of pleasure to having the National Association meet in Memphis this fall. We feel that it will be quite an experience for some of the agents to visit the 'Sunny South'." In parentheses Tom added, "We had about 20 days of freezing weather between Thanksgiving and Christmas."

The membership of the following 19 committees will spark plug the life of your association throughout 1951:

AGRICULTURAL PLANNING—Lem A. Edmonson, Montgomery, Ala., chm.; Ray Bender, Westport, N. Y., vice-chm., Northeastern; Wm. G. G. Stewart, Montrose, Colo., vice-chm., Western; S. C. Bohanan, Paducah, Ky., vice-chm., Southern; Fred Keeler, Chillicothe, O., vice-chm., North Central; M. C. McClane, Jr., Starke, Fla.; Joseph T. Brown, Brockton, Mass.; Houston E. Ward, Hugo, Okla.; Kenneth Imig, Watseka, Ill.; O. S. Fletcher, Eugene, Ore.; George B. Simons, Cooperstown, N.D.; M. E. Hollowell, Nashville, N.C., and Lloyd Wilson, Redfield, S.D.

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ASSOCIATION POLICY—Stuart Stirling, Silver City, N. Mex., chm., Western; A. F. McDougall, Concord, Mass., vice-chm., Northeastern; John Logan, Clearwater, Fla., Southern; E. V. Ryall, Kenosha, Wis., North Central; Ex Officio Members—Past Pres., Rex Carter, Uniontown, Pa.; Pres., Edwin Bay, Springfield, Ill.; Vice-pres., Sherman Hoar, Sterling, Colo.

CONVENTION—Leonard Kerr, Memphis, Tenn., chm.

DISTINGUISHED SERVICE—Horace Abbott, Indianapolis, Ind., chm., North Central; H. C. McWilliams, Ebensburg, Pa., vice-chm., Northeastern; G. L Hales, Jackson, Miss., vice-chm., Southern; W. G. Vingant, Portales, N. Mex., vice-chm., Western; W. B. Bunn, Champaign, Ill.; Henry H. White, Cape May, N.J.; Delores Nichols, Farmington, Utah; A. B. Jolley, Dallas, Tex., and Ethon Henson, Nashville, Ark.

FARM AND HOME SAFETY—Alvah R. Hecht, York, Neb., chm., North Central; E. M. Hauser, Ontario, Ore., vice-chm., Western; C. E. Bernhardt, Lexington, N.C., vice-chm., Southern; W. H. Henderson, Georgetown, Del., vice-chm., Northeastern; E. L. Hartman, LaPorte, Ind., and H. E. Thompson, Morton, Tex.

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INFORMATION—L. D. Paquette, Middlebury, Vt., chm., Northeastern; O. O. Mowery, Carlinville, Ill., vice-chm., North Central; Cecil Black, Indianola, Miss., vice-chm., Southern; S. H. Stolte, Arvada, Colo., vice-chm., Western; V. W. Peroutky, Oshkosh, Wis.; Tom Wingo, Trenton, Tenn.; R. H. McDougall, Butler, Pa.; T. D. Aitken, Fall City, Neb.; Arvil Ashment, Basin, Wyo.; Francis Bowen, Greensboro, Ga.; W. H. Hanson, Caledonia, Minn., and P. B. Ezell, Newberry, S.C.

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YOUTH—Paul Barger, Waterloo, Ia., chm., North Central; J. B. Hurst, Enid, Okla., vice-chm., Southern; Theo Fosse, Great Falls, Mont., vice-chm., Western; H. J. Poorbaugh, Pottsfield, Pa., vice-chm., Northeastern; M. E. Tascher, Morris, Ill.; D. F. Bredthauer, Refugio, Tex.; George Mullendore, Magnolia, Miss.; Cletus Murphy, Waseca, Minn.; Hugh Hurst, Somerset, Ky.; H. G. Marck, Estancia, N. Mex.; S. L. Lowery, Elizabeth City, N.C.; Carl Worthly, Fort Kent, Me.; M. S. Burke, Jamestown, N. D., E. L. Wood, Gate City, Va.

FINANCE AND BUDGET—Rex Carter, Uniontown, Pa., chm.; Ed W. Holden, Concord, N.H., and W. R. Lominick, Vicksbury, Miss.

★

A Former County Agent Helps India Agriculture

According to a report in the January 22 issue of Time magazine, a former county agent in North Carolina, Horace Holmes, was sent two years ago to India as an adviser on village improvement to the Indian government. He finally was located in a poor section in northern India.

It was, as we would say, in a mess. The people were half-starved, infested with disease, and sacred cows wandered throughout the land competing with the people for precious food.

First, Holmes succeeded in getting some of the farmers to plant a new kind of Indian wheat. In the first season it yielded 43% more than the old-style wheat. Next he showed farmers how to rotate their wheat with soil-improving legumes and yields went up to 63%.

Farmers were now confident. They trusted Holmes. Next he taught them how to use improved but simple tools. The next step was to teach farmers how to use fertilizer, grow improved vegetables, and kill insects with insecticides.

What this former county agent has done is an example of how the government's Point Four "Technical Assistance" program can help the world's less fortunate people. It also proves the versatility of American county agents.

★

George: "Dull party, isn't it?"
Roy: "Yes, very."
George: "Let's go home."
Roy: "I can't—I'm the host."

★

Daddy, does a political plum grow from seed?

No, son, it often comes from clever grafting.

If grain goes down in your community you can help by suggesting the use of a Hume Pick-Up Reel. Long, moving tines, always perpendicular, pick up matted, downtangled grain and feed it evenly, gently without shattering, without clogging on the cutter bar or in the combine cylinder. Ideal for all small grain and bean crops. And harvests more grain from straight standing grain and bean crops, too. Write for literature.

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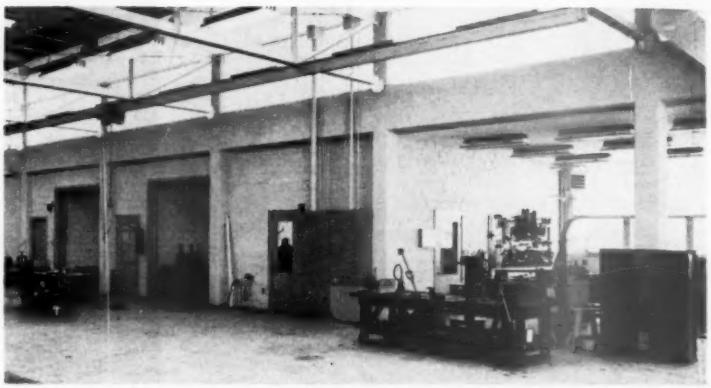
Teacher's Farm Shop

Submit An Annual Request for Needed Shop Improvement

By T. J. WAKEMAN
Teacher-Trainer in Farm Mechanics
Agricultural Engineering Department
Virginia Polytechnic Institute



It may take several years to get the equipment you need in your farm shop. Therefore, plan each year to submit the budget and list of needed shop equipment. Itemize exactly what you need. Note the spacious room and overhead lift found in this farm shop at Kalispell, Mont.

● SOMETIME DURING the next three months our local school authorities are going to formulate their budgets for the coming year. Every effort should be made to present to your local board a statement of your needs for the next year.

Some teachers have stated that they have not had a nickel for teaching supplies or equipment replacement in the last five years. If this is true, it is usually their fault. Most of us have been fortunate enough to secure what we need. Yet, some teachers expect their needs to be filled without presenting their requests before the annual school budget is made.

If our budget is not included we can't expect our local officials to meet our needs. There is universal agreement among our teachers that we should plan for our finances the same as we plan for our yearly program.

Include Other Personnel

The whole community profits by your department. Thus, why should the teacher battle alone for finances?

A committee representing each group that you teach usually makes a list of improvements, equipment, and supplies which they know is needed. By groups, we mean each all-day group, veteran class, young farmer group, and each adult group including the food processing groups. Thus, when all of this is done most of your needs are usually tabulated and all the groups know about them.

After these committees have assembled their material, secure the assistance and consent of your superintendent and principal to ask your local board of education member to assist in formulating a financial plan for the year. He is usually the key man for your school. He represents your area on the board and has a vote. Too, he takes pride in doing all he can for his patrons.

School officials could readily feel the cold if a visit were made to a poorly heated shop during cold weather. Be certain the cold is not due to your negligence, such as broken window panes, poorly fitted doors, or the stove pipe having fallen down. If the forge is smoking or the projector is worn out, the school officials should know about it. However, they depend on you to let them know of your needs.

Do not forget they realize the things you need are for the school and school is there to meet the needs of the community. Thus, we should not hesitate to let our needs be known.

Submit Summary of Needs

The summary of needs are usually submitted by the superintendent, local board of education member, school principal, or a committee made up of a member from each group taught in the department along with the ag teacher. The summary should be brief and with cost estimates included. Omitting estimates may cause action to be deferred until the next meeting.

The summary of needs should be presented before the formulation of the school budget. This may be any time between now and March 1. Should you be too late for this year, start at once on next year's plan.

There are numerous sources of finances for worthy causes in most communities. Oftentimes they contribute to such projects, especially when members of such clubs are familiar with our activities.

Many FFA Chapters help with departmental finances. Shop or school projects are used often to aid in school finances. Matching such funds with money from county and state sources when possible, adds to the amount and increases local interest.

After being notified of available funds, the next step is to see your superintendent or principal concerning who is to do the purchasing.

If you are authorized to do the purchasing, it is normally advisable to submit your orders for bids to several reliable distributors. Regardless of who does the ordering, when you make out your lists, be certain to give all specifications.

When you make out your order, be sure you specify the brand or make of the equipment you are ordering. For instance, just don't order solder. State the name and type of solder which you wish.

In ordering any equipment hold out for your specifications, otherwise you may be stuck with poor quality, nonpractical equipment, and poor supplies. Many teachers make out the orders in stamped addressed envelopes and pre-

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THE POPULAR *Forney* ALL PURPOSE ARC WELDER

180-Amp with Built-in Double Voltage Arc Booster. Calibrated Voltage for each of the 20 Amperage Settings. Capacitor equipped and 80% Power Factor Corrected. Precision built with patented vertical windings and core of highest quality laminated Silicon Steel.

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THE CLINTON MACHINE CO.

Look for the Clinton Emblem when you buy your garden tractor or power equipment.

You'll find Clinton Engines on leading garden tractors—such as this Mighty-Man Tractor.

CLINTON ENGINES

sent them to the purchasing authorities, ready to be signed. This usually saves time and is frequently more efficient.

It is desirable to do all your purchasing as early in the year as possible. Too often funds may be exhausted before your bills are paid. Supplies and equipment are always purchased before school opens in order that they may be organized. Oftentimes, teaching plans have to be changed due to the lack of teaching material.

It is advisable always that all bills be presented in plenty of time to have them paid during the current year. This will prevent part of next year's allotment being used for back bills.

When any organization assists you in buying equipment or supplies always present them with the bill. Never take money unless it is handled by a committee. Lastly, spend all that is alloted to you, but—spend it wisely.

What to Include in Formulating Plans

The following is an incomplete list to be used only as a guide. All specifications omitted due to space.

Equipment
tables
chairs
stoves
bulletin board
desks
files
typewriter
benches
hand tools
6" grinders
12" arbor saw
17" drill press
acetylene welder
electric welder 250 amp
heavy duty grinder
Buffalo forge 243B
18" planer
6" jointer
6" power hack saw
tractor maintenance units
14" drill press
18" radial saw
½ HP portable drill
6" portable grinder
14" wood lathe
20" band saw
13" metal lathe
majestic drill sharpener
12" electric clock
dust exhausts
boiler
food grinders
retorts
kettles
cookers
sealers
hoists
emasculators
others

Alterations
tool room
tool cabinets
overhead doors
welding booths
book cases
magazine files
wiring for power
wiring for light
forge stack
painting
roof
doors
windows
others

Supplies
paper
envelopes
lumber
paint
thumb nuts
brush cleaner
solder
wheel bearing grease
lock washers
nails
bolts
tin
cutting oil
lubricating oil
branding fluid
sweeping compound
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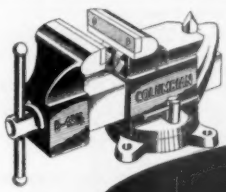

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Unit I

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—"Control Weeds in Tobacco and Vegetable Plant Beds"
—"Aero Cyanamid—What It Is and How to Use It"
—"Parathion Insecticide Growers Handbook"

JOHN BEAN DIV., FOOD MACHINERY CORP.
—(Chart) Farm Spray Guide
—"Opportunities in Custom Spraying"

DOW CHEMICAL COMPANY
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—"Dowklor (Chlordane) for Agricultural Use"
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—"Control of Weeds in Interplanted Grain, Dow Selective Weed Killer"
—"DN 289, the New Non-Oil Dormant Spray"
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—"Spray Chart for Fruits and Vegetables"
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—"Dow Weed Control Digest"
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—"Sure-Set, Plant Growth Control Agent for Earlier Production of Field Grown Tomatoes"
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—"Dithane, Organic Fungicide for Bonus Bushels"
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Brown Swiss Cow Placing

CORRECT PLACING—1-3-2-4

No. 1 is a large, strong, stretchy cow, she is superior to No. 3 in teat placement, width and height of rear attachment of udder, and in dairy character. She does appear a bit easy in the loin.

No. 3 is superior to No. 2 in balance and symmetry of parts; in spring of fore rib and depth of body. The rear attachment of udder is higher and wider than that of No. 2, and her fore attachment of udder is stronger. Her teat placement is not as good. No. 3 being dry does not show the dairy character of No. 2.

No. 2 is superior to No. 4 in her top line, her length of straightness for rump and width at the pins and thurls. The rear attachment of udder on No. 2 is wider and stronger than on No. 4, the fore attachment on No. 4 is slightly superior to No. 2. Both cows show splendid dairy character and quality.

★

Columbia Sheep Placing

CORRECT PLACING—2-1-3-4

No. 2 is a very thick ewe with more depth of fore rib, heavier bone and more Columbia character than any other ewe placed on her legs, and is a very straight-topped ewe. I would place her over the No. 1 ewe as she shows more character about the head, has a more ideal covering of wool about the eyes and has more substance.

I would place No. 1 second. This ewe is correctly set on her feet and legs and has the bone and substance of No. 2 ewe. I would place her over No. 3 because she is stronger in her top and shows more balance.

I would Place No. 3 third. A ewe with perhaps the heaviest leg of mutton of any ewe in the class. She has lots of depth through her rear flank and is a rugged heavy-bone ewe, but she is a bit low just back of the shoulders, lacks the depth of forerib, the Columbia character, and the balance of the other two ewes.

I would place No. 4 last. No. 4 is a bit crooked on her hind legs, is too short in the rump and lacks the depth, thickness and fullness of leg of lamb of any of the other ewes.

★

Polled Shorthorn Cow Placing

Official placing of this class of Polled Shorthorn females is 3-4-2-1.

Number 3 is outstanding in the class and serves as an excellent model of a breeding Polled Shorthorn beef cow. She has great depth of body on short rugged legs and is wonderfully well balanced throughout, with strong evidence of body capacity so essential to economical and profitable feed utilization. Note particularly her short broad face and wide muzzle, natural polled head, uniformity of top and bottom lines, and rugged and well placed set of legs.

Number 4 most closely approaches the balance and depth of number 3 and is placed second primarily because of this. She has smoothness of fleshing, straight lines, and all-around good beef conformation.

We criticize number 2 for being too long in the face and for an indication of being rough and "hippy" in her rear quarters. She does show excellent width and depth of body throughout.

Number 1 is placed at the bottom of the class particularly because she shows length of leg and less body depth with its unfavorable influence on feed capacity. In other words, she exhibits a tendency to be "pencil-bodied" when compared with the other three cows.

The closest placing is between number 4 and number 2 for second place in the class.

★

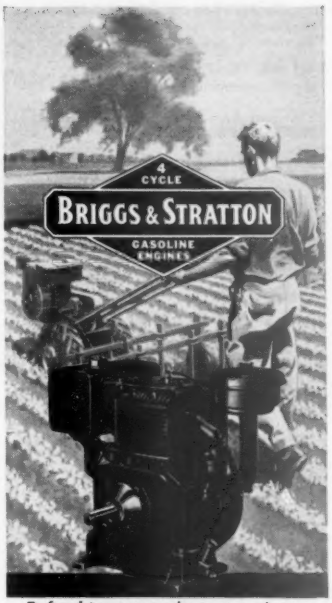
Duroc Boar Placing

The placing on the class of senior spring Duroc boars is 3-4-1-2. Three was considered an outstanding top boar of the class and was placed over four because of his length and smoothness of side, better balance, and much more desirable set to his hind legs. Three is also fuller in the lower ham, deeper through the heart and shows more depth of side and spring of rib than does four.

Four was placed over one because he followed more closely the type of the top boar having more length and smoothness of side and a much neater head and ear. However, we do give advantage to one for ruggedness, fullness of ham and loin, and for being sounder in his feet and legs.

One was placed over two because he is a more rugged pig, carries down to a deeper, fuller ham, is a little longer in the side and has more overall balance. Two does have a neater ear and is a heavier seeded boar.

★



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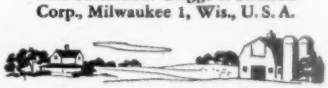

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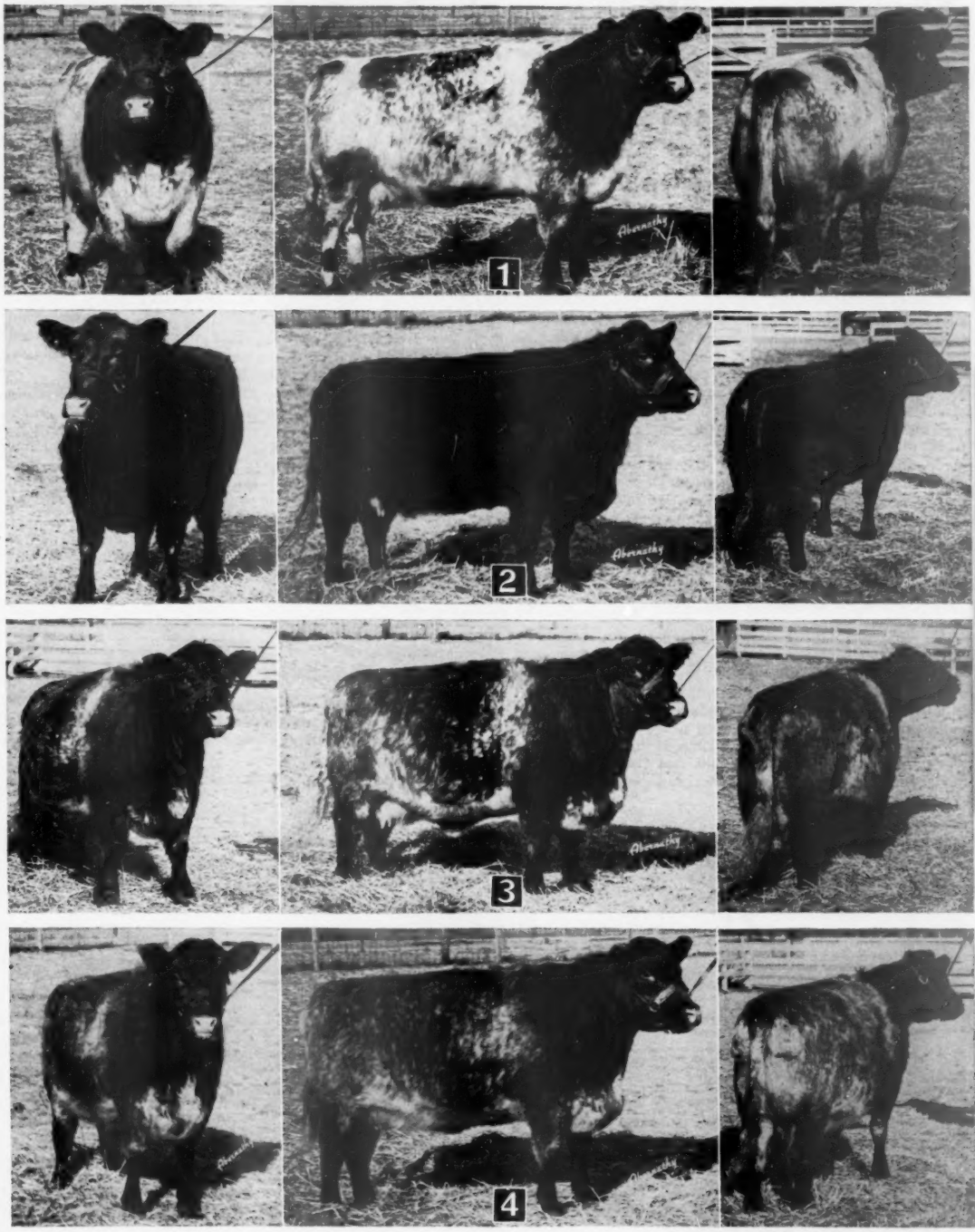
Judging PICTORIAL

How Would You Place These Polled Shorthorn Cows?

(See Page 87 for correct placing.)



The Newest In Feed Supplements . . .

Vitamin B_{12} and Antibiotics

By H. R. Bird
U. S. Department of Agriculture
Beltsville, Maryland

● THERE'S ALWAYS something new in the feed business, and the latest news-makers are vitamin B_{12} and antibiotics.

Vitamin B_{12} supplements and antibiotic supplements are both new, but in different ways. Vitamin B_{12} has always been in poultry and swine feeds. If it hadn't, there wouldn't be any pigs or chickens left because they can't grow and reproduce without it.

In the past it was supplied, unbeknown to all of us, by fish meal, fish solubles, meat meal, and dried skimmilk. It was one of the big reasons why these materials were essential in starting mashes and breeder mashes for chickens and turkeys. But there wasn't enough to go around. In fact, the total supply of vitamin B_{12} from these sources in the United States was probably less than half enough for the most efficient production of pork and poultry.

Vitamin Produced Commercially

The discovery that this vitamin was produced by many kinds of bacteria and molds made it possible to produce new B_{12} supplements commercially. Then it was found that the same organisms that made the antibiotics streptomycin and aureomycin also made B_{12}. The B_{12} concentrates then could be obtained as by-products of the manufacture of antibiotics. The fact that one of these by-products contained some left-over aueromycin led to the discovery that the antibiotics stimulated growth.

Unlike B_{12}, antibiotics are completely new in feeds. They are not essential as the vitamins are. Chickens grow and reproduce satisfactorily in the total absence of dietary antibiotics. But they grow faster with them than without.

In adding a B_{12} supplement to a feed, one must take account of the vitamin that is already there in the form of fish meal or other animal by-products. Young growing chickens need 7 to 10 micrograms of this vitamin per pound of feed and breeding birds need about 4 micrograms. Fish meal contains about 100 micrograms per pound, fish solubles 300 to 400 micrograms, and meat meal 40 to 100 micrograms. The commercial B_{12} supplements are sold with a statement of potency.

Antibiotics Not In Feedstuffs

An antibiotic supplement may be added to a feed without regard to the quantities of other feedstuffs since these contain no antibiotics. The discovery of the effect of antibiotics on growth made it possible to improve even the best of the diets that were available before. The more complete the diet with respect to protein, vitamins, and minerals, the greater the growth response that may be obtained by adding an antibiotic.

Several antibiotics are being used commerically in feeds for growing chickens, turkeys, and pigs. They are aureomycin, bacitracin, penicillin, streptomycin, and terramycin. The quantities being used range from 1 to 5 milligrams per pound of feed or from 2 to 10 grams per ton. These levels are dictated at least in part by economic considerations. Higher levels of some of the antibiotics would give a greater growth response but would be too expensive.

Thus far, dietary antibiotics have proved their value only for young growing animals. When fed to hens, they do not increase egg production or hatchability or improve the quality of the chicks hatched. There is a little very recent evidence that their inclusion in the diet of sows or female rats in lactation is beneficial to the young.

Since antibiotics are completely new in feeds, there has been some fear that their use might lead to harmful effects. Experience thus far provides no basis for such fear. The levels now being used commercially can be increased 20-fold without producing harmful results, at least within a period of six weeks. The levels used commercially do not lead to accumulation in the tissues so you need not expect to encounter an antibiotic the next time you eat pork chops or fried chicken.

Unfortunately, supplements containing

In U. S. Dept. of Agriculture tests, this chick was fed a basal diet of corn, soybean oil meal, and vitamins known to be essential. No vitamin B-12 was fed. Weight at six weeks was 342 grams.

The same basal diet, plus 20 micrograms of vitamin B-12 per kilogram of feed, produced chicks with an average weight of 466 grams at six weeks.

Basal diet, plus a supplement which included vitamin B-12, an arsonic acid derivative, and a source of aureomycin, produced an average weight of 535 grams at six weeks.

Read how bigger broiler profits are made with

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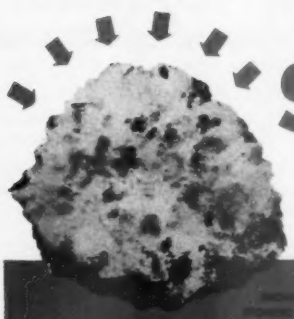
Granite Grit



says... **James E. Gross**
Shenandoah Valley, Virginia
"Our growers got up to 14.7 cents more profit per bird by investing 2/5 cent extra in STONEMO Hard Grit."

EXTRA GRINDING SURFACES

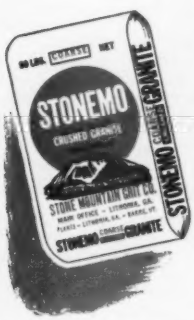
of this Hard Insoluble Grit help broilers *Grind Out More* from every pound of feed for faster gains at less cost

agrees... **Harry Levin, hatchery-feed operator, Chattanooga, Tenn.**
"On 19,250 birds my growers got an average of 3 1/5 lbs. at the end of 10 weeks, 4 days—feed conversion 2.92—with the help of STONEMO Hard Grit."

yes... **says Arthur Gray**
prominent North Georgia grower
"Since using STONEMO Grit, we have had an *average* increase in feed efficiency of 5 lbs. of meat per 100 lbs. of feed."

These prominent men in the broiler industry agree that STONEMO's extra grinding surfaces *do go to work* grinding feed—helping birds get more nutrients for good body growth—helping to get birds to market faster—helping to build bigger profits.

STONEMO is insoluble—it will not dissolve—will not upset mineral balance of ration. It remains hard—ready to grind out more from every pound of feed—to save feed costs.



FREE NEW VO-AG COUNTY AGENT KIT includes special "Question and Answer" Bulletin which gives many helpful facts about grit. Send for yours. Address Dept. BF-3.

STONE MOUNTAIN GRIT COMPANY
Lithonia, Ga.
Barre, Vt.

have your broiler growers
MAKE THIS TEST!

Have them take 25 of their birds, give them regular care and feed without using STONEMO.

Have them take the other 25 birds and feed 3 to 5 bags of STONEMO per 1000 birds right from the start.

At the end of the growing season, let them compare! They will see what a difference STONEMO makes in increased weight, in better feed conversion, in less cost of feed per pound of growth, in bigger profits!

PRODUCE MORE FOOD, SAVE LABOR, GUARD HEALTH—enjoy trouble-free running water service at *rock-bottom costs*. A Guaranteed Myers Water System is the answer! Its smoothly powerful pump makes the most of every kilowatt . . . rarely requires attention . . . continues to pay its way long after ordinary pumps call it quits! That's because Myers has never scrimped on quality to meet a price. But value considered, you'll find these famous water systems modestly priced indeed. Complete line of *Ejecto* and Reciprocating Types covers every need. See your Myers dealer, or mail coupon today.

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by the Spurway Method

Simplex SOIL TESTING

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Soil Testing is Imperative to
OBTAIN MAXIMUM CROP YIELDS AT A MINIMUM COST

The Complete Simplex Soil Test Outfit is practical for use in any locality—requires no waiting — allows for frequent, yearly tests. Contains all the solutions and apparatus necessary for 100 to 300 soil tests for each of 15 important soil chemicals including trace elements, and tissue tests for Nitrates, Phosphorus and Potassium.

F.O.B. Cleveland $35—Complete solution replacements only $18.

Other Simplex Soil Test Outfits $25 and $16.

Write for detailed information and catalog. All prices subject to change.

THE EDWARDS LABORATORY
P.O. Box 2742-P, CLEVELAND 11, OHIO

vitamin B_{12} and antibiotics were first marketed as Animal Protein Factor supplements. This name indicated to some people that they could replace protein, an entirely false conclusion. It indicated to others that they could be used in combination with plant proteins to replace animal proteins. This is true under some but not all conditions.

A combination of soybean meal and B_{12} can replace all the animal protein supplements in some starting mashes and breeder mashes, but to insure uniformly excellent results, one should include some animal protein supplement in such feeds. The quantity of animal protein need not be as great as it would be if it were the only source of B_{12}.

Antibiotics are in no sense a substitute for animal protein or any other kind of protein. They produce their best results when added to diets containing protein of high quality.

The Association of American Feed Control Officials has recently discontinued the tentative definition of A.P.F. supplement and adopted tentative definitions of B_{12} supplement and antibiotic supplement.

★

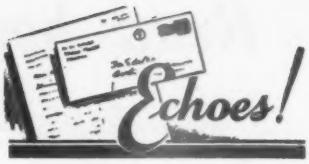
Oxy-Acetylene Booklet

Here's a chance to find out about the indispensable tool of American industry—the oxy-acetylene flame. Illustrated with many application scenes, a 16-page booklet, "Oxy-Acetylene Flames and Metalworking—A Story of Industrial Progress," tells you all about the flame, how it works, how it's used in welding, cutting, heating, and other operations.

It is an excellent source of information for students in vocational schools, secondary schools, for farm groups, and other interested persons. Write to The Linde Air Products Co., 30 East 42nd St., New York 17, N. Y.

★

Ohio State university has appointed Hal R. Taylor as assistant editor in agricultural extension. Prior to coming to Ohio, he was assistant extension editor in New Mexico. He will edit extension bulletins, circulars, leaflets, and 4-H Club literature.



We Like the Style . . .

. . I like the changes that you made in your February issue, that is continuing the story on succeeding pages. It helps us in reading the articles and saves time.—*W. B. Jones, soil conservationist, Crawfordville, Ga.*

. . I like your new arrangement in BETTER FARMING METHODS of continuing one story on succeeding pages until finished. I have wanted to see that for a long time and congratulate you on being the first to do it.—*James Hodges, youth assistant, Elkader, Ia.*

. . We like the new arrangement or layout and hope that you will continue to print a complete story on succeeding pages.—*H. M. Chambers, state conservationist, Oklahoma City, Okla.*

. . The February issue of BETTER FARMING METHODS is a big improvement over previous issues. Considerable time was saved and the articles are much more interesting set up this way.—*C. O. Cartwright, associate county agent, Hathorne, Mass.*

. . I like your change in the February issue of BETTER FARMING METHODS. The stories have higher continuity.—*Max Lampo, vice-president, NVATA, Mo.*

. . I like the advantage of stories and articles continuing on the following page rather than having to turn to the back of the magazine. The Washington News article is always very interesting and Mr. Bailey does a very creditable job of discussing timely subjects.—*L. H. Ford, International Harvester Co., Chicago 32, Ill.*

. . I would like to have the editorial layout display of the BETTER FARMING METHODS February issue continued. I did find myself reading the complete article rather than skimming through remaining pages of a story, like so many times is the easiest thing to do.—*Harold A. McCutchan, county agent, Mount Vernon, Ind.*

These are but a few of the many comments which we received on the layout of the February issue. The March issue follows the same pattern. Any other comments, pro or con, would be appreciated. To those who did take time to write, sincere thank you.—Editor.

★

It Was A Good Issue . . .

I want to congratulate you on the fine issue that you put out in January covering the agricultural chemical field. It gives one the information that he should have at his fingertips.—*Harold J. Schmitz, KFEQ, St. Joseph 7, Mo.*

Here is

FORAGE earning power

A home-owned forage harvester equips its owner to harvest rapidly, at the right time. It captures the perishable goodness of leafy green forage before rain or sun can damage the crop.

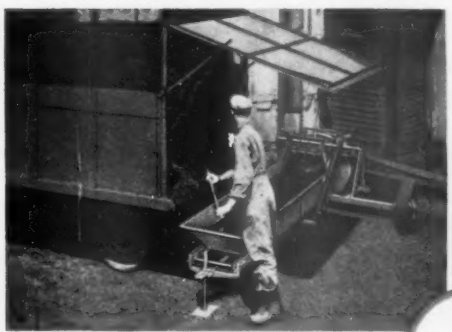
Soil-building grass or legumes, chopped hay, row crops, fodder and bedding — all are power-harvested with *one* machine. Lactation life of cows is lengthened. Forage crops are turned into concentrate feed rich in carotene and natural protein.

With the Allis-Chalmers Forage Harvester, the farmer can follow the ideal soil-building system. To livestock, to the land, and to the farmer, it can be the most welcome machine on the farm.

three-in-one

FORAGE HARVESTER

With three low-cost units (1. Grass sickle-bar attachment; 2. Windrow pickup for sickle attachment; 3. Row crop attachment), the Allis-Chalmers Forage Harvester offers free choice of the crop and harvesting method. Heavy forage flows through the 36-inch feed rolls and wide chopping cylinder. Cup-shaped spiral knives have easy-shearing, cut-and-throw action that eats up tonnage. Advanced labor-saving design includes built-in knife sharpener.



big capacity

FORAGE BLOWER

Wide, cupped-blade fan and 9-inch blower pipe handle heavy volume, save power and fuel. Extra long, deep and low conveyor hopper is hinged and spring-suspended. Easily raised for wagon or truck to drive through.

Auxiliary Engine for farms with smaller tractors. Easily interchanged with other A-C harvesting machines.

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The following commercially-sponsored films are available to vo-ag teachers, county agents and other agricultural leaders. Most of these films are entirely free; a few require return transportation charges. Inquiries and correspondence should be sent direct to the names and addresses shown. Order films at least 10 days to two weeks before you need them.—Editor.

Legend: Motion (1); Slide (2); Strip (3); Sound (S); Color (C).

The Visual Aids section has been increased to two full pages. The section has been divided into two units of one page each. Each page will appear in alternating months. Unit one will appear in March, May, July, September, November, and January. Unit two will appear in the remaining six months. Be sure to look at each unit when it appears so that you might note the new films which are added from time to time.

Unit I

ALLIS CHALMERS MFG. CO., Milwaukee, Wis.
"Planning to Prosper" 22 min. (V1-SC-16)
"Tomorrow's Leaders" 15 min. (V1-SC-16)
"Hay" 22 min. (V1-SC-16)
"Looking Ahead" 22 min. (V1-SC-16)
"The Winners" 22 min. (V1-SC-16)
"The Soybean Story" 22 min. (V1-SC-16)
"The Hybrids" 22 min. (V1-SC-16)
"Save Grain With Hay" 22 min. (V1-SC-16)
"Plowing for Profit" 10 min. (V1-SC-16)

ALLIED MILLS, INC., Wayne Agric. Youth Dept., Fort Wayne 1, Ind.
"Waste Weasels" 27 min. (V3-S)
"Building Profit Pullets" 28 min. (V3-S)
"Making Cows Pay" 24 min. (V3-S)
"Full Egg Baskets" 27 min. (V3-S)
"It's in the Bag" 30 min. (V3-S)
"Calf Craft" 30 min. (V3-S)
"Making Bacon" 28 min. (V3-S)

ALUMINUM CO. OF AMERICA, Motion Picture Dept., Pittsburgh 19, Pa.
"The Farmer Takes a Roof" 15 min. (V1-S-16)
"Unfinished Rainbows" 37 min. (V1-SC-16)
"How to Weld Aluminum—Torch Welding" 17 min. (V1-S-16)
"How to Weld Aluminum—Arc Welding" 10 min. (V1-S-16)
"Curiosity Shop" 30 min. (V1-SC-16)

AMERICAN CYANAMID CO., Agric. Chemicals Div., Adv. Dept., 30 Rockefeller Plaza, New York 20, N. Y.
"Tobacco Bed Weed Control the Cyanamid Way" 18 min. (V1-SC-16)

AMERICAN DRY MILK INSTITUTE, INC., 221 N. LaSalle St., Chicago 1, Ill.
"The Story of Nonfat Dry Milk Solids" 15 min. (V3-S) *(If you do not have a sound slide projector, ask for printed narration.)*

AMERICAN FEED MFG. ASSOC., 53 West Jackson Boulevard, Chicago 4, Ill.
"Growth of a Nation" 30 min. (V1-S-16)

AMERICAN GUERNSEY CATTLE CLUB, Peterborough, N. H.
"Man Made Miracles" 30 min. (V1-SC-16)
"Judging Dairy Cattle" (V3-C)

AMERICAN HEREFORD ASSN., 300 W. 11th St., Kansas City 6, Mo.
"Beef Production the Hereford Way" 30 min. (V1-SC-16)

AMERICAN PLANT FOOD COUNCIL, 910 17th St., N. W., Washington 6, D. C.
"First in the Hearts of Farmers" 24 min. (V1-S-16)

ANCHOR-SERUM CO., South St. Joseph, Mo.
"Story of Vaccination Simplified" 36 min. (V1-SC-16)

ARCADY FARMS MILLING CO., 223 W. Jackson Blvd., Chicago 6, Ill.
"Grass Silage" 15 min. (V1-SC-16)

ASSOCIATION FILMS, 35 W. 45th St., New York 19, N. Y.; 206 S. Michigan Ave., Chicago 3, Ill.; 351 Turk St., San Francisco 2, Calif.; and 3012 Maple Ave., Dallas 4, Tex.
"The King Who Came to Breakfast" 17 min. (V1-SC-16)
"Producing Quality Milk" 27 min. (V1-S-16)
"Shortest Way Home" (Travel Movie) 33 min. (V1-S-16)
"Electrified Farming" (V1-SC-16)

JOHN BEAN MFG. CO., Lansing, Mich.
"Better Livestock" (V1-SC-16)

BELL & HOWELL CO., 7100 McCormick Road, Chicago 45, Ill.
"The Show Must Go On" (V1-S-16)

BROWN-FORMAN DISTILLERS CORPORATION, P. O. Box 1080, Louisville 1, Ky.
"Better Feeds" 12 min. (V1-S-16)

CALIFORNIA REDWOOD ASSN., 405 Montgomery St., San Francisco 4, Calif.
"The Story of Redwood" 30 min. (V1-SC-16)

CALIFORNIA SPRAY-CHEMICAL CORP., Richmond, Calif.
"Dairy Insect Control" (V1-SC-16)

J. I. CASE CO., Racine, Wis.
"Pageant of Progress" 20 min. (V1-SC-16)
"5000 Years in 50 Scenes" 20 min. (V3-S)
"Level Farming on Sloping Fields" 10 min. (V1-SC-16)
"Soil and Life" (terracing) 10 min. (V1-SC-16)
"Broadbase Terracing With the One-Way Plow" 10 min. (V1-SC-16)
"Your Own Moldboard Plan Will Build a Good Broadbase Terrace" 10 min. (V1-SC-16)
"Hydraulic Controls" 15 min. (V1-SC-16)
"Modern Farm Machines Bring Back the Range" 20 min. (V1-SC-16)
"Building a Pond" 10 min. (V1-SC-16)
"High Yielding Harvesting" 10 min. (V1-SC-16)
"Strips and Curves" (dryland farming) 20 min. (V1-SC-16)
"More Food From Fewer Acres" (irrigation and intensive farming) 20 min. (V1-SC-16)
"Where Furrows Begin" 30 min. (V3-S)
"Starting New Combines Right" 30 min. (V3-S)
"Operating Your Combine" 15 min. (V3-S)
"Field Chopping" 15 min. (V3-S)
"The Almost Careful Hired Man" 15 min. (V3-SC)
"More From Your Mower" 15 min. (V3-S)

THE CHESTER WHITE SWINE RECORD ASSOCIATION, Rochester, Ind.
"Judging Chester White Barrows and Gilts" (V2-C)

CONSOLIDATED PRODUCTS CO., Danville, Ill.
"The Semi-Solid System of Hog Raising in Action" 30 min. (V1-C-16)
"Start Here With Your Sows" 25 min. (V1-C-16)

CRANE CO., distributed by Castle Films, Div. of United World Films, Inc., 542 S. Dearborn St., Chicago 5, Ill.
"The Next Step" 30 min. (V1-SC-16)

DEERE & CO., Moline, Ill., distributed by Reid H. Ray Film Industries, Inc., St. Paul 1, Minn.
"Dr. Jim" 50 min. (V1-S-16)
"The Windjammer" 52 min. (V1-S-16)
"The Blacksmith's Gift" 31 min. (V1-S-16)
"Melody Comes to Town" 50 min. (V1-S-16)
"The Tuttle Tugger" 35 min. (V1-S-16)
"The Clean Cut" 11 min. (V1-S-16)
"More Grain in the Grain Tank" 13 min. (V1-S-16)
"Hitching & Belting Pointers" 11 min. (V1-S-16)
"Better Performance, Longer Life in Corn Planters" 13 min. (V1-S-16)
"Menace of the Corn Belt" 11 min. (V1-S-16)
"Keep Your Eye on the Soil" 15 min. (V1-S-16)
"Soil Conservation With Regular Farm Equipment" 20 min. (V1-SC-16)
"Early Does It" 22 min. (V1-S-16)
"Greener Pastures" 15 min. (V1-SC-16)

DEKALB AGRICULTURAL ASSOC., INC., Educational Div., Dept. 1-B, DeKalb, Ill.
"Acres of Gold" 20 min. (V1-SC-16)
"Under Summer Skies" 15 min. (V1-SC-16)
"Acres of Chix" 20 min. (V1-SC-16)
"Hunger Signs in Corn" 8 min. (V3-S)
"Corn Colors and Color Mixtures" 8 min. V30S)
"Sexual Reproduction in Plants" 15 min. (V3-S)
"Hidden Values in Hybrid Corn" 10 min. (V3-S)
"The New Chicken" 10 min. (V3-S)
(A recording can be furnished where a sound slidefilm projector is available, or, if not, a printed syllabus can be provided.)

DOBECKMUN CO., P. O. Box 6417, Cleveland 1, O.
"A New Method of Tobacco Plant Culture" 27 min. (V1-C-16)

DOUGLAS FIR PLYWOOD ASSOCIATION, 1232 Shoreham Bldg., Washington 5, D. C.; 848 Dailey News Bldg., Chicago 6, Ill.; 500 Fifth Ave., New York 18, N. Y.; and 301 Tacoma Bldg., Tacoma, Wash.
"How to Finish Plywood" 22 min. (V1-SC-16)
"The Plywood Fleet" 25 min. (V1-SC-16)
"Prefabrication With Plywood" 22 min. (V1-SC-16)
"Miracle in Wood" 30 min. (V1-SC-16)
"Farm Uses for Plywood" 30 min. (V1-SC-16)

DOW CHEMICAL CO., Advertising Dept., Midland, Mich.
"Death to Weeds" 20 min. (V1-SC-16)
"Chemical Weed Control" 25 min. (V1-SC-16)

E. I. DUPONT DE NEMOURS & CO., INC., Agric. Promotion Div., 2539 Nemours Bldg., Wilmington 98, Del.
"Lost Harvest" 20 min. (V1-SC-16)

ETHYL CORP., Chrysler Bldg., New York 17, N. Y.
"Masters of the Soil" 23 min. (V1-S-16)
"This Is Our Land" 26 min. (V1-S-16)
"Magic Agriculture" 23 min. (V1-S-16)
"Preventive Maintenance Pays" 21 min. (V1-S-35)
"Old MacDonald Had a Farm" 28 min. (V1-S-16)
"Pattern for Progress" 20 min. (V1-SC-16)

A. T. FERRELL & CO., West Michigan & Wheeler Sts., Saginaw, Mich.
"Cleaning and Treating Seed the Clipper Way" 14 min. (V1-SC016)

RCA's new "400" Junior

Lightweight (Complete Single-Case Portable)

16mm Sound Movie Projector

The new "400" Junior has all the features you have looked for in a 16mm sound projector. It is compact and portable. Speaker in lift-off cover, projector, and connecting cables are all contained in an attractive lightweight, single-case unit.

Easy and quick to set up. So simple to thread, even a child can do it. Pictures at their best in brilliance and contrast. Sound reproduced with dramatic realism and full tonal range. Meets every requirement of fully professional quality. Priced within limited budget requirements of schools, churches, business and industry.

Convenient to handle. Easily carried.

So light in weight a schoolgirl can pick it up to place on a table.

Write Dept. O-134 for complete information.

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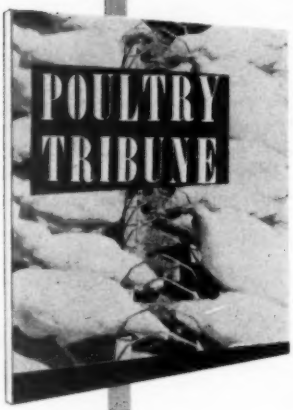

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..."That Reminds Me"

Men Are Blind . . .

She was sick in bed, and her husband, who was fixing her a cup of tea, called out that he couldn't find the tea. "I don't know what could be easier to find," she answered. "It's right in front on the pantry shelf in a cocoa tin marked matches."

★

Give Him An "A" . . .

Teacher: "Now, can anyone give me a sentence using the word 'diadem'?"

Elmer: "People who drive carelessly across the railroad tracks diadem sight quicker than those who stop, look, and listen."

★

Why Be Partial?

A young lady of pleasing appearance, while stepping down from a street car, carefully raised her skirt to avoid tripping. As she did so, she noticed a young man who apparently was taking more than necessary interest in her movements.

Thinking to check him for his rudeness, she went up to him to speak a piece of her mind. "Haven't I a perfect right?"

"Yes, madam," he cut in, "and if I may say so, a peach of a left, too."

★

Well?

Small boy: "I'm not afraid of going to the hospital, Mom. I'll be brave and take my medicine."

Mother: "That's my good boy!"

Small Boy: "But I ain't going to let them palm off a baby on me like they did on you. I want a pup."

★

Misinterpretation . . . .

A six-year-old child from New York's East Side was visiting in the country. The farmer's wife took her for a tour around the place. She showed her the garden, the chickens, the stables, and finally they arrived at the pig pen where an enormous sow reclined in the sun.

"Big, isn't she?" asked the farmer's wife.

"No wonder," the girl replied. "I saw her yesterday and she had 10 little pigs blowin' her up."

★

Terse Answer . . .

The peddler knocked at the door and started his sales talk with the statement that "I'm out scratching for a living."

"Sorry, but I don't itch," vowed the woman of the house as she shut the door.

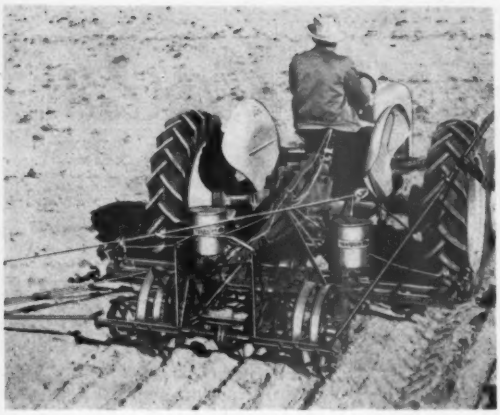
★

It Should Be . . . .

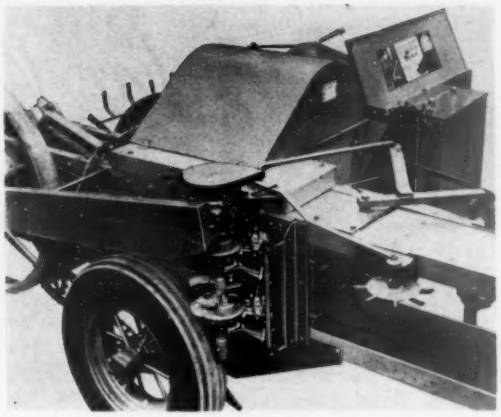
Salesman: "Now that, sir, is the most becoming hat you've tried on so far."

Customer: "I agree with you entirely, it's my own."

New Farm Equipment



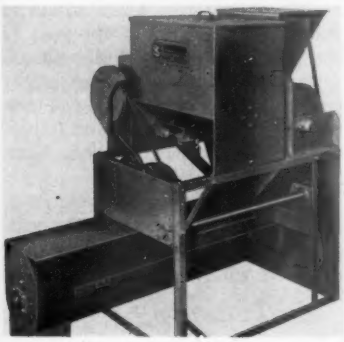
This planter is designed for planting corn, beans, peas, sorghums, and other row crops. It is precision-built, ruggedly constructed, and designed for uniform and accurate check-rowing, drilling, or power hill dropping. Made by Dearborn Motors Corp.



This is a new automatic twine-tie baler. It has a simple, positive self-tying mechanism which makes firm, neat, full-weight bales, and sliced for easy livestock feeding. Manufactured by the J. I. Case Co.

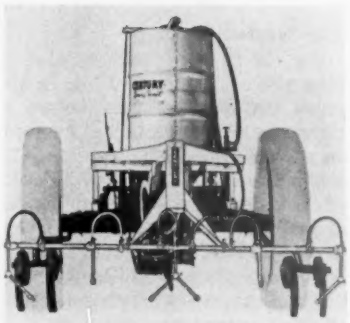
A new self-propelled farm machine has been developed which will have many uses on the farm. The basic machine can be used with attachments to make a self-propelled combine or two-row corn picker. Other attachments are in the testing or planning stage. All attachments are designed for quick mounting on a power unit which will be called the Uni-Tractor. A product of Minneapolis-Moline Co.

This newly developed combine will be available for grain harvesting in 1951. This power machine has a choice of 32 forward speeds from which to choose for proper field travel in all types and conditions of crops. There are also many other good features. Manufactured by Massey-Harris Co.



Left—This machine is made for treating seed by the slurry method. It is ruggedly constructed, has "sealed-for-life" ball bearings, takes up less than 6 sq. ft. of floor space. It has a capacity of 400 bushels per hour. It is manufactured by the Superior Separator Co.

Right—This tractor-mounted sprayer permits cultivating and spraying at the same time. Available in a two or four row unit, it also has a kit which can convert from a two row into a four row sprayer unit. It was designed principally for use in the cotton growing areas but can be used for vegetable and other row crops. By Century Engineering Corp.



For What It's Worth

By HERBERT L. SCHALLER, Editor

Booklet Section Expands

Last year readers of BETTER FARMING METHODS ordered nearly 400,000 booklets from our Helpful Booklet section. This expression of interest in this section has proved its value. Therefore, in order to better serve readers of BETTER FARMING METHODS, this section has been enlarged to four full pages.

The Helpful Booklet section will be divided into two, two-page units. Each unit will be run in alternate months so that each month's listing of booklets will be different from the preceding one.

This means that many new booklets will be listed in the next few months. You are encouraged and urged to check this section closely. Be sure that you are getting the many new booklets listed each month.

Unit I begins in this issue on page 86. New booklets added each month are listed in bold face type.

When ordering booklets, tear out the Helpful Booklet sheets. Mark on the sheets those you wish to receive and the exact number of each, write your name and address plainly, and send to the Service Department, BETTER FARMING METHODS, Mount Morris, Ill.

The Husbandman

An old Chinese story tells of a king who used to spend hours in his dress uniform, parading before a mirror in his room. He was no good as a king. In his palace of self-content, he sat admiring himself while his subjects starved to death, and the affairs of his kingdom went to pot! He loved his mirror!

One night, a wise old member of the king's court got together a group of palace attendants, and while the king slept, cut a window in the wall where the king's mirror stood.

When the king dressed himself in his uniform and his medals next morning, he walked to where the mirror had been and saw to his amazement the unending procession of his people passing on the street. He saw starving children reaching into garbage cans for crusts. He saw sick and maimed men and women, the fathers and mothers of these children. He saw the sufferings and wrongs that existed.

He called for simple clothes and went out to mingle with the crowd. His whole outlook on life changed when he stopped looking into a mirror and looked through a window.

You have already done this. You have discarded your mirror for a window. Yours is a job of service rather than self admiration.

Yet, it would do no harm to reflect a minute on this thought. What do you, as an ag leader, see when you look out your window?

BETTER FARMING METHODS

CORNELIUS

"Yes, I have a question. Something I've been thinking about all thru this 'soil conservation' movie . . . is it a 35mm or a 16mm film?"

As you know, this is our fourth annual husbandry issue. We have tried to spotlight timely articles on livestock, soils, poultry, and crops. The information contained in this issue was written to a large extent by people well versed and competent in their fields.

Which of these assumes the most importance? None of them. They're not even equal to the most important one, about which no specific story or information appears in this issue.

This is the husbandman. As defined by the dictionary, he is a farmer. He is the most important one—he and his farm family around which these four units of husbandry revolve.

As you look through your window, his welfare stands above all else. You are not so much interested in the annual number of people you reach, the number of meetings you hold, the number of contests you win, or the overall statistical material which you compile and submit to superiors each year. No, your main interest is in the welfare of the farmer and his family.

If good husbandry is to come about, it must come through him. If your success and welfare is to improve, his must improve first.

Therefore, you need to use the wealth of material which comes to your desk each day of the year to specifically benefit the husbandman.

So, the next time you look out of your window, note what you see. Keep looking until the most important one you see is the husbandman and his family.

And, needless to say, if you by any chance are still looking in the mirror, cut it out, throw it away, and install a window.

HLSchaller

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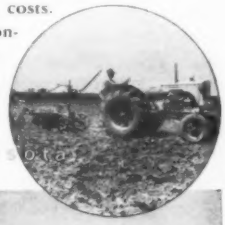

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